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**PRELIMINARY ASSESSMENT/  
VISUAL SITE INSPECTION**

**JOHN L. ARMITAGE & COMPANY  
ELK GROVE VILLAGE, ILLINOIS  
ILD 047 572 029**

**FINAL REPORT**

**Prepared for**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Waste Programs Enforcement  
Washington, DC 20460**

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**EPA Region 5 Records Ctr**



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## EXECUTIVE SUMMARY

B&V Waste Science and Technology Corp (BVWST) performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from six solid waste management units (SWMU) at the John L Armitage & Company (Armitage) facility in Elk Grove Village, Illinois. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritization of RCRA facilities for corrective action.

The Armitage facility is located at 1313 Lunt Avenue in Elk Grove Village, Cook County, Illinois (latitude 41° 59' 30" N and longitude 87° 58' 00" W). The facility occupies approximately one and a half acres in an industrial area. The Armitage building was built for John L. Armitage and Co. in 1966, on land previously used for farming.

Armitage submitted a Notification of Hazardous Waste Activity to the EPA on August 14, 1980, and a RCRA Part A permit application on January 14, 1981. Armitage submitted a letter in 1982 to the EPA requesting the facility status as a treatment, storage and disposal facility (TSD) be changed to that of a generator. However, the facility TSD status was never eliminated. A closure plan for the outdoor drum storage area was submitted to the Illinois Environmental Protection Agency (IEPA) in 1989. Soil cleanup objectives were defined by the IEPA Division of Land Pollution Control. The closure plan was approved by IEPA and is being implemented by Armitage.

The Armitage facility in Elk Grove Village has been inactive since May 15, 1989, and the building is currently for sale. All of the process equipment and waste material have been removed from the premises. The company's records have been taken to the corporate headquarters.

Industrial paints and coatings were manufactured at the Armitage facility from 1968 to 1989. Generally, the facility was operated using one shift employing 25 to 30 people.

The identification of SWMUs is difficult because the facility is closed, facility contacts were in management and do not have a clear memory of the operations, and historical documentation is sometimes contradictory.

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The manufacturing process for a batch of paint or coating involved the blending of resins and pigments with solvents or water in a mixing tank. Mixed ingredients were then pumped into 1-, 5-, and 55-gallon containers for sale. Containers were stored near the loading dock until distributed. Used, empty containers were returned by customers for cleaning and recycling by Armitage. Wastes generated during these processes included wash water (K086 and D006), spent solvent (F003 and F005), and waste paint and paint sludge (D001, F003, F005).

The PA/VSI identified the following six SWMUs and no Areas of Concern (AOCs) at the facility:

**Solid Waste Management Units**

- 1 Drum Satellite Accumulation Area
- 2 Tote Container Accumulation Area
- 3 Indoor Drum Accumulation Area
- 4 Outdoor Drum Storage Area
- 5 Municipal Waste Dumpster
- 6 Southeast Grassy Area

**GROUND WATER**

A State Geological Survey regional study suggests silty, clayey till occurs from the surface to a depth of approximately 50 feet beneath the facility. The description of material penetrated in the boring of a water well in the vicinity supports the Survey's conclusion. Till has a low hydraulic conductivity and would probably retard a surface release from migrating to a subjacent water-producing zone. However, in the case of a release, removal of the contaminated soil is recommended because the infiltration from rain is not being eliminated. The migration of hazardous waste constituents would be slow, but it would still occur. Consequently, the release potential for the ground water pathway is considered low for all SWMUs at this facility.

A water well owned by the Village of Elk Grove (Well No. 6) and capable of producing 1,300 gallons per minute is located about a half mile east of the Armitage facility. A water well, owned by Elk Grove Water and Sewer Company and capable of producing 1,000 gallons per minute is located about a half-mile northeast of the facility. The wells are used as an emergency, supplemental water supply, not for drinking water.

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## **SURFACE WATER**

The only wetland exceeding two acres in size within a one mile radius of the facility is a cluster of open water marshes a little less than a mile to the southeast. Salt Creek is about a mile and a half west and drains into the Des Plaines River 15 miles to the southeast. At its nearest approach, the Des Plaines River is about six miles east of the Armitage facility.

The drum satellite accumulation area, the tote container accumulation area, and the indoor drum accumulation area (SWMUs 1, 2, and 3) were located indoors on concrete floors. There is low potential for any of these units to have released hazardous constituents to surface water.

An improved ditch and culvert system runs along the south boundary of the facility. There is a high potential for constituents of materials released from the outdoor drum storage area, the municipal waste dumpster, and the southeast grassy area (SWMUs 4, 5, and 6) to have been dissolved by precipitation, and been transported to the ditch in runoff. There is a moderate potential for any hazardous compounds which may have accumulated in ditch sediments to be remobilized, either by re-dissolving into the water of the ditch or by particle transport.

## **AIR**

Armitage operated with an IEPA Division of Air Pollution Control Operating Permit. Any air releases from the cleaning operations (SWMUs 1 and 2) are considered in this report to have been permitted activities.

Use of the indoor accumulation units was discontinued when the facility was closed in 1989, and the potential for air release from these units (SWMUs 1, 2, and 3) is low. The possibility of air release during any remedial activities should be considered in remedial activity work plans.

The outdoor SWMUs have histories of documented releases (SWMUs 4, 5, and 6). The soil beneath SWMU 4 has been characterized in a study by contractors hired by Armitage as containing hazardous volatile compounds. It is highly possible that volatile compounds may be identified in the soil of the southeast grassy area. As long as the facility soil remains undisturbed, it is unlikely that air releases of hazardous compounds in the soil will be significant.

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The release of volatile compounds from the outdoor drum storage area by the soil vapor extraction system is an IEPA permitted activity. Any other remedial activities which may be executed, and which involve disturbing the soil under SWMUs 4, 5, or 6 should address the possible release to the air of volatile compounds or inorganic particulate material in the remedial activities work plan.

#### ON-SITE SOILS AND CONTIGUOUS OFF-SITE SOILS

The drum satellite accumulation area, the tote container accumulation area, and the indoor drum accumulation area (SWMUs 1, 2, and 3) were located indoors on concrete floors. There are no cracks evident in the floor of SWMU 1, and although there are cracks evident in the floor of SWMU 3 the probability that any releases from these units could have had an impact on facility soil is considered low. However, the integrity of the concrete sides and floor of the four foot deep pit constituting secondary containment for SWMU 2 cannot be verified because the pit has been filled with sand and sealed with concrete on top. If there are cracks in the concrete of the pit there is a high potential for hazardous constituents to have been released to surrounding soils.

The outdoor drum storage area, the municipal waste dumpster, and the southeast grassy area (SWMU 4, 5, and 6) all have documented histories of releases. A series of soil sampling rounds in 1990 by Armitage's contractors have confirmed the presence of hazardous constituents in the soil beneath SWMU 4, but not beneath SWMU 5. Only the northern boundary of SWMU 6 was sampled. Low levels of hazardous constituents were identified along that portion of what may have originally been the outdoor drum storage area.

An earthen ditch runs along the railroad right-of-way on the south side of the facility, entering a culvert as it passes the southeast grassy area (SWMU 6). There is a high potential for hazardous compounds released from the outdoor drum storage area, the municipal waste dumpster, and the southeast grassy area (SWMUs 4, 5, and 6), to have been dissolved by precipitation and transported in runoff to the ditch. Dissolved constituents could have then collected in the sediments of the ditch.

#### RECOMMENDATIONS

Borings should be advanced in the area of secondary containment of the tote container accumulation area (SWMU 2). Samples of the soil below the pit should be collected and analyzed.

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for hazardous constituents. If the analyses confirm the presence of hazardous constituents, the soil will need to be remediated.

The IEPA approved RCRA closure activities being conducted on the soil below the outdoor drum storage area (SWMU 4) should be continued. The paint residues on the asphalt pad should be cleaned as specified in 40 CFR 264.178. Confirmatory sampling should include the area of the municipal waste dumpster (SWMU 5).

Pictures of the southeast grassy area (SWMU 6) taken during IEPA site inspections should be checked to identify releases in this area. The possibility that this unpaved area was the original drum storage area should be investigated. Sampling of the soil should be conducted in locations identified in the photographic analysis, and in other probable drum storage locations (i.e., near the edge of the asphalt, near the eastern perimeter, near the doorways, along the east wall, behind the building, and outside the southwest door). Samples should be analyzed for the constituents listed in the Armitage facility soil clean-up objectives specified by the IEPA in 1990. These constituents and their clean-up objectives are listed in Section 2.5 of this report. This unit should be closed in compliance with RCRA closure requirements.

A sample of the sediment in the ditch south of the facility should be collected near SWMU 6, and analyzed for heavy metals and other constituents with site-specific cleanup objectives.

## **1.0 INTRODUCTION**

**PRC Environmental Management, Inc (PRC), received Work Assignment No C05087 from the U.S Environmental Protection Agency (EPA) under Contract No 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5 B&V Waste Science and Technology Corp (BVWST), TES 9 Team Member, was tasked by PRC to conduct the PA/VSI for the John L Armitage and Company (Armitage) facility**

**As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC)**

**A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste**

**The SWMU definition includes the following**

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells**
- Closed and abandoned units**
- Recycling units, wastewater treatment units, and other units that EPA has generally exempted from standards applicable to hazardous waste management units**
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading-unloading area, or an area where solvent used to wash large parts has continually dripped onto soils**

**An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic**

**basis This includes any area where such a release in the future is judged to be a strong possibility**

**The purpose of the PA is as follows.**

- **Identify SWMUs and AOCs at the facility**
- **Obtain information on the operational history of the facility**
- **Obtain information on releases from any units at the facility**
- **Identify data gaps and other informational needs to be filled during the VSI**

**The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago**

**The purpose of the VSI is as follows**

- **Identify SWMUs and AOCs not discovered during the PA**
- **Identify releases not discovered during the PA**
- **Provide a specific description of the environmental setting**
- **Provide information on release pathways and the potential for releases to each medium**
- **Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases**

**The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all visible SWMUs, identifying evidence of releases, initially identifying potential sampling parameters and locations, if needed, and obtaining all information necessary to complete the PA/VSI report**

**This report documents the results of a PA/VSI of the John L Armitage & Company facility in Elk Grove Village, Illinois The PA was completed on March 13, 1992 BVWST gathered and reviewed information from the Illinois Environmental Protection Agency (IEPA), EPA Region 5 RCRA files, Federal Emergency Management Agency (FEMA) maps, U S Geological Survey (USGS) topographic maps, and published geologic reports The VSI was**

conducted on March 13, 1992. It included an interview with the Armitage facility representatives and a walk-through inspection of the facility. Six SWMUs and no AOCs were identified at the facility.

BVWST completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and 14 inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C. The concentrations of ethyl benzene identified in outdoor drum storage pad soil samples collected in 1990 are presented in Attachment D. The results of chemical analyses conducted on the same soil samples are presented in Attachment E.

## **2.0 FACILITY DESCRIPTION**

**This section describes the facility's location, past and present operations (including waste management practices), waste generating processes, history of documented releases, regulatory history, environmental setting, and receptors**

### **2.1 FACILITY LOCATION**

**The Armitage facility is located at 1313 Lunt Avenue in Elk Grove Village, Cook County, Illinois (latitude 41° 59' 30" N and longitude 87° 58' 00" W), as shown in Figure 1. The facility occupies approximately one and a half acres in an industrial area.**

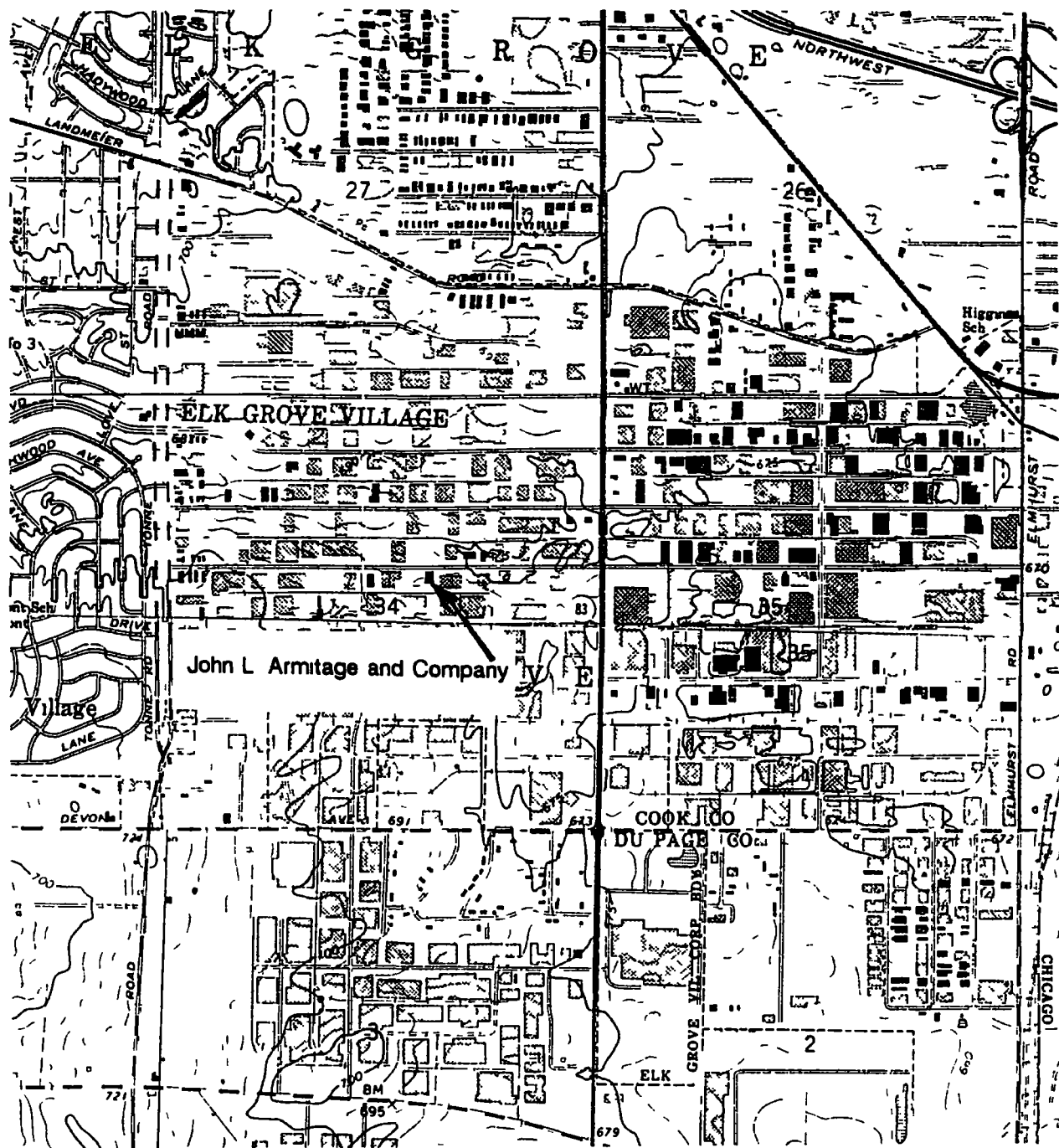
**The facility is bordered on the north by Lunt Avenue and an unoccupied building across the street, and on the west by another unoccupied building. On the south side is a drainage culvert and ditch, and a railroad. On the other side of the railroad is an active industrial facility. On the east, at 1375 Lunt Avenue, is Topy Precision Manufacturing Inc.**

### **2.2 FACILITY OPERATIONS**

**The Armitage facility in Elk Grove Village has been inactive since May 15, 1989. The Armitage corporate headquarters is in Gallatin, Tennessee. The building is currently for sale. All process equipment and waste material have been removed from the premises. The company's records have been taken to the corporate headquarters. Armitage intends to proceed with RCRA closure of the drum storage area (IEPA, 1989).**

**Industrial paints and coatings were manufactured at the Armitage facility from 1968 to 1989. The Armitage building was built for John L. Armitage Co. in 1966, on land previously used for farming. The facility was operated exclusively by Armitage for the purpose of industrial coatings production from 1968 to 1989 when the facility became inactive. During peak operations (early 1970's and early 1980's) the factory was operated in two shifts, but generally the facility was maintained using one shift employing 25 to 30 people.**

**The building layout has an office area on the north side (about 4,000 square feet), a two-bay loading dock to the west of the offices, a manufacturing area south of the offices (about 10,000 square feet), and in the back, an indoor raw material and drummed waste storage area.**



APPROXIMATE SCALE



Source

Modified from U S Geologic Survey  
Arlington Heights and Elmhurst Illinois  
Quadrangles 1980.



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FIGURE 1  
FACILITY LOCATION



(about 7,500 square feet) It is possible that this 7,500 square feet is an addition, constructed of pre-engineered materials after the facility opened The facility layout is presented in Figure 2

The office area included two laboratories The north laboratory was used for the formulation of new products The south laboratory was used for quality control testing of products

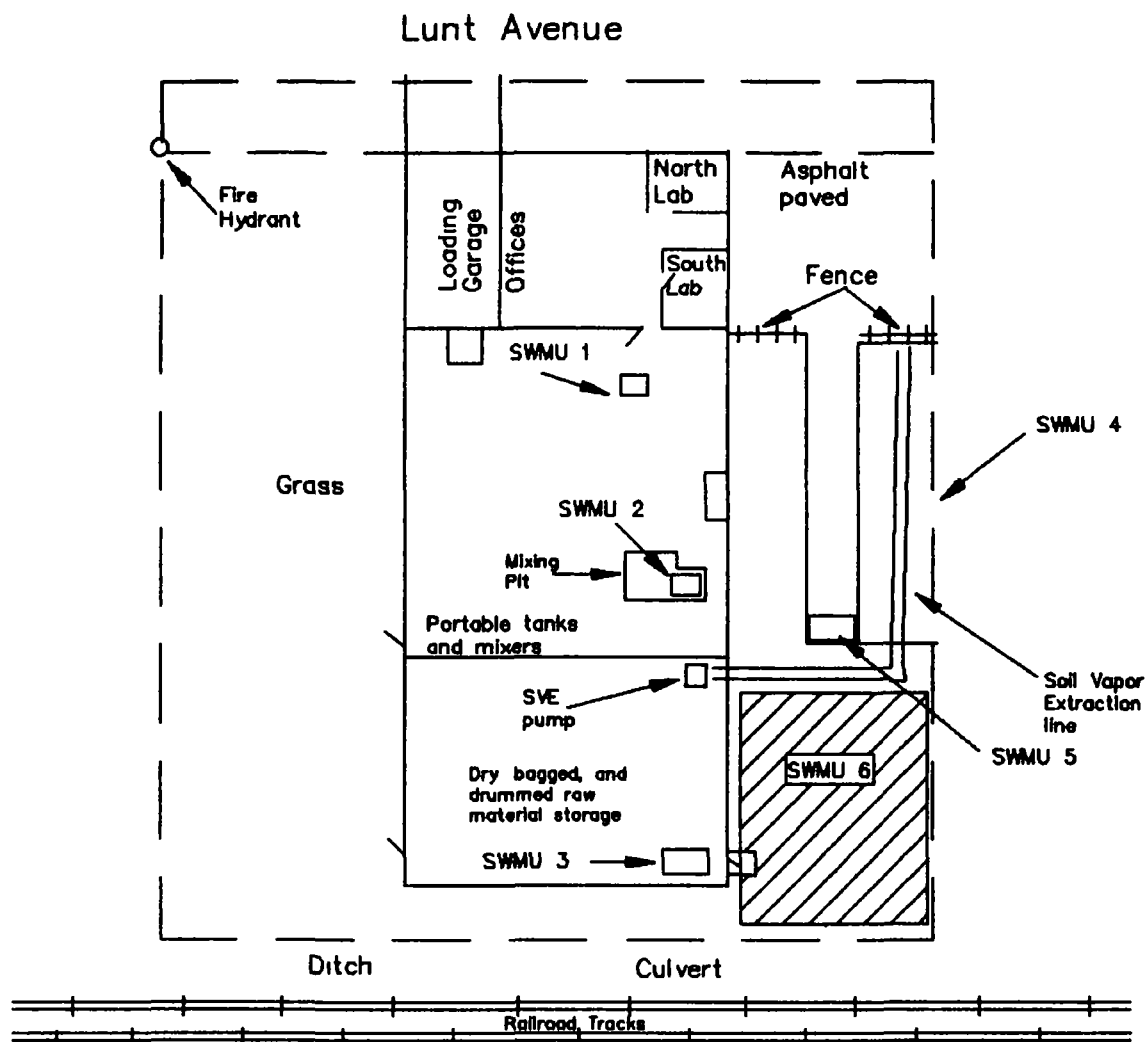
Within the manufacturing area four sub-areas are roughly defined, the cleaning area to the northeast, the finished product storage area to the northwest, the small batch mixing area to the southwest, and the large batch mixing area to the southeast Portable paint-mixing tanks, capable of holding 50 to 500 gallons of paint, were operated in the small batch mixing area The large batch mixing area was located in a four-foot deep, L-shaped pit with concrete sides and floor Four large tanks were bolted to the pit floor Three of these tanks were served by an overhead mixer on a track The fourth tank had a dedicated mixer When work at the facility was discontinued in 1989, the mixing tanks were removed, the pit was filled with sand and sealed with concrete Located approximately 15 feet southwest of the mixing pit was a water-cooled grinding machine with floor drains

A concrete-block power room was constructed within the large batch mixing area, opening into the indoor raw material and indoor drummed waste storage area


The identification of solid waste management units (SWMUs) is difficult because the facility is closed, facility contact was management and does not clearly remember the operations setup, and historical documentation is somewhat contradictory

Manufacturing a batch of paint or coating involved the blending of resins and pigments with solvents or water in a mixing tank Mixed ingredients were then pumped into 1-, 5-, and 55-gallon containers for sale Containers were stored near the loading dock until distributed Used, empty containers were returned by customers, for cleaning and recycling by Armitage The area used to clean containers for reuse was not specified during the personnel interview, nor was it identified during the file review

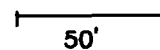
After completion of each batch, the emptied mixing tanks were cleaned with an appropriate solvent, producing approximately four gallons of waste solvent or waste water for



#### LEGEND

- SWMU 1 Drum Satellite Accumulation Area
- SWMU 2 Tote Container Accumulation Area
- SWMU 3 Indoor Drum Accumulation Area
- SWMU 4 Outdoor Drum Storage Area
- SWMU 5 Municipal Waste Dumpster
-  SWMU 6 Southeast Grassy Area

#### APPROXIMATE SCALE



J L ARMITAGE & CO  
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FIGURE 2  
FACILITY LAYOUT



each tank cleaned. Waste water and spent solvent were accumulated in the tank cleaning area located in the northeast corner of the manufacturing area in either drums or large containers (totes). Full drums were moved to the drum storage pad on the east boundary of the property. Drums were also apparently stored indoors in the raw materials storage area (IEPA, DLPC, 1988d). About four and a half drums of spent solvent and waste wash water were produced each week.

On the east side of the building is an asphalt paved area (about 10,000 square feet) with a fence separating the front third which is used for parking. The back two-thirds of the asphalt area is fenced on the north and the east sides. The east side of this enclosed asphalt area was used for the storage of drummed waste and had a design capacity of 545 drums. Under the west side of this paved area were five underground storage tanks used for the storage of product solvents: 2,000 gallons of isopropyl alcohol, 2,000 gallons of methyl ethyl ketone, 2,000 gallons of acetone, 2,000 gallons of butyl cellosolve, and 5,000 gallons of an unspecified recycled solvent.

On the west side of the facility is a large grassy area (about 20,000 square feet) accessed by two pedestrian doors in the west wall.

On the south side of the facility, a 15-foot easement for utilities and drainage separates the building from the railroad track. The railroad does not have a spur into the facility. A water spigot is located in the middle of the back wall with an erosion channel leading away from the building.

The facility SWMUs are listed in Table 1.

## **2.3 WASTE GENERATING PROCESSES**

The primary waste streams generated at the Armitage facility were (1) wash water (K086/D006), (2) spent solvent (F003/F005), and (3) waste paint and paint sludge (D001/F003/F005). These wastes were generated in the production of industrial coatings and paints and in the recycling of containers. The narrative for the IEPA June 1988 site inspection gives the most comprehensive listing of wastes generated by the Armitage facility. These wastes are discussed below and are listed in Table 2.

**TABLE 1**  
**SOLID WASTE MANAGEMENT UNITS (SWMUs)**

<b><u>SWMU Number</u></b>	<b><u>SWMU Name</u></b>	<b><u>RCRA Hazardous Waste Management Unit*</u></b>	<b><u>Status</u></b>
1	Drum Satellite Accumulation Area	No	Inactive
2	Tote Container Accumulation Area	No	Inactive
3	Indoor Drum Accumulation Area	No	Inactive
4	Outdoor Drum Storage Area	Yes	Inactive, undergoing RCRA closure
5	Municipal Waste Dumpster	No	Inactive
6	Southeast Grassy Area	Yes	Inactive

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**Note**

**\* A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application**

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**TABLE 2**  
**SOLID WASTES\***

<u>Waste/EPA Waste Code</u>	<u>Source</u>	<u>Primary Management Unit**</u>
Wash Water / K086 and D006	Tank cleaning	1, 2, 3, 4, 6
Spent Solvent / F003 and F005	Tank cleaning	1, 2, 3, 4, 6
Waste Paint and Paint Sludge / D001, F003, and F005	Clean-out of returned drums	1, 2, 3, 4, 5, 6

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**Notes**

\* This facility is no longer active, consequently no wastes are currently being produced

\*\* Primary management unit refers to a SWMU that currently manages or formerly managed the waste

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The primary waste generating processes were flushing lines when a batch of paint was pumped into containers, cleaning tanks and pumps after production of a batch, and cleaning containers returned by customers for recycling

The cleaning of tanks involved pouring about four gallons of solvent, either water or an organic solvent, into the used mixing tank. The solvent was stirred in the tank, dissolving residual product. If the tank was portable, this was done in the cleaning area. If the tank was not portable, the cleaning was done in the mixing pit (SWMU 2) where stationary tanks were located. The spent solvent was then pumped into a 55-gallon drum (SWMU 1) (Armitage, 1992a), or one of two tote containers (SWMU 2) with capacities of 1,300 gallons and 1,000 gallons. The 1,300-gallon tote contained waste wash water and the 1,000-gallon tote contained spent organic solvent (IEPA, DLPC, 1988a). Drummed waste was moved from the drum satellite accumulation area (SWMU 1) to the outdoor drum storage area (SWMU 4) and stored until it was shipped off the facility.

Approximately 1,000 gallons of wash water were generated per month from the tank cleaning process. Wash water was shipped to Chem-Clear (Chicago, Illinois) for treatment.

Approximately 500 gallons of spent solvent were generated each month from the tank cleaning process. Spent organic solvent was shipped to Safety-Kleen Corporation (Safety-Kleen) in Dolton, Illinois (IEPA, DLPC, 1988a) or Acme Solvent Reclaiming (Armitage, 1992a) to be recycled.

Paint that was scraped from drums returned by customers was disposed in the municipal garbage dumpster (SWMU 5). Approximately 1,000 gallons of waste paint and paint sludge (D001/F003/F005) were generated each month from the cleanout of returned drums. The waste paint and paint sludge was either transported by Browning Ferris Industries (BFI) and disposed of in a landfill (Armitage, 1992a), or was shipped to EWR Inc. (Coal City, Illinois) for fuel blending (IEPA, DLPC, 1988a).

Drums were accumulated in the indoor drum storage area (SWMU 3), (IEPA, DLPC, 1988d) but the contents of the drums stored in this area can not be ascertained. The exact location of SWMU 3, the number of drums stored, and the period of storage are also unknown.

Generation of wastes in the formulating laboratory and the quality control laboratory could not be verified. Presumably, the volume of any waste from these labs would be minimal and disposed of with wastes generated in the manufacturing section.

## **2.4 HISTORY OF DOCUMENTED RELEASES**

This section discusses the history of documented releases to ground water, surface water, air, and on-site soils at the Armitage facility.

The earliest known inspection of the Armitage facility was conducted February 4, 1982 (IEPA, DLPC, 1982). The inspection report states some drums in the outdoor drum storage area (SWMU 4) were punctured and lying on their sides.

A series of RCRA inspections were performed by the IEPA in 1988. The June 16, 1988 inspection report states that many drums are uncovered and leaking waste onto the ground (SWMU 4). The August 26, 1988 report states that there had obviously been no clean-up conducted and a few additional spills were observed. Photographs taken during that inspection showed several spills on the asphalt outdoor drum storage area (SWMU 4), as well as two releases in the grassy area south of the drum storage area (SWMU 6). The September 26, 1988 report stated that, although the spills observed in the first two inspections had been cleaned up, a new spill was observed in the grassy area south of the drum storage area. Dried paint was observed outside the garage-type door at the southeast corner of the building (SWMU 6), and a paint spill was apparently coming from the municipal waste dumpster (SWMU 5).

On April 19, 1990, 19 soil samples were collected at 12 nodes of a grid with 22-foot intervals, measured across the asphalt, outdoor drum storage area (SWMU 4) and at four additional spots in the asphalt area by TEAM Inc. Samples were collected at all locations at a depth of six to 12 inches. Three samples were also collected at a depth of 12 to 18 inches. All samples were analyzed for the EPA target compound list volatiles using Method 8240 and EP toxicity metals. The analysis results were used to define areas for additional sampling. Elevated concentrations of 12 volatile compounds and six metals were identified in the southeast portion of the asphalt outdoor drum storage area.

On May 18, 1990, a second sample round was conducted. Twelve samples from 10 locations were collected in the southeast quadrant of the asphalt drum storage area. Ten of these

samples were collected at a depth of 24 to 30 inches. Two were collected at shallower depths. These samples were analyzed for ethylbenzene, toluene, and xylene, a reduction based on the results of the first round. Elevated concentrations of these compounds were identified at this depth and a third round of sampling was undertaken. In the third round, conducted June 8, 1990, 14 samples were collected from 12 locations. Sample locations were chosen around the perimeter of the round-two samples, to help identify the horizontal extent of elevated concentrations. The third-round samples were analyzed for the same three organic volatile compounds. The analyses revealed elevated concentrations of all three compounds at depths of 24 to 30 inches, 30 to 36 inches, and 42 to 48 inches (TEAM, 1990).

These sample results were used by the IEPA to establish clean-up objectives for the facility (IEPA, DPLC, 1990b). The objectives are listed in Section 2.5 of this report.

According to a report prepared for Armitage by O'Brien and Associates, five underground solvent storage tanks were removed from the area between the east side of the building and the asphalt outdoor drum storage area by Peter J. Hartman Co. in March 1988. A representative of Elk Grove Village Fire Department, Mr. Jack Denny, was present during the tank removal. Two samples of silty clay were collected at the time of the tanks removal: one from the bottom of the north end of the excavation, and one from the east side of the excavation at a depth of about three feet. The soil samples were analyzed for presence of solvents stored in the tanks: isopropyl alcohol, butyl acetate, and butyl cellosolve (ethylene glycol monobutyl ether). Butyl acetate was identified at concentrations of 4.6 ppm and 8.0 ppm respectively. Butyl cellosolve was identified in the first sample at a concentration of 65 ppm. There are no soil clean up objectives set for these compounds (O'Brien, 1988). The list of stored solvents cited in the O'Brien report varies from the list specified during the VSI (page 8 of this report). This discrepancy has not been resolved.

The location was re-excavated and sampled at the request of a potential buyer. Three samples were collected at a depth of eleven feet and analyzed for the volatile organic compounds listed on the EPA target compound list. Neither the firm collecting the samples nor the laboratory analyzing them was specified in Mr. Armitage's letter to BVWST describing soil investigation at the Armitage facility. These samples showed concentrations of methylene chloride, acetone, carbon disulfide, 2-butanone, benzene, toluene, ethylbenzene, and xylenes (Armitage, 1992b). None of the concentrations exceeded the soil clean up objectives defined for the Armitage facility.

by the IEPA. The objectives are listed in the next section of this report. As a result of this sampling data, the area where USTs were removed is not considered an Area of Concern.

The map accompanying the RCRA Part A permit application and the IEPA inspection reports (until after the facility closed in 1989) show the outdoor drum storage area in the southeast, an area not covered by asphalt. It is unclear if this was an initial mistake and copies of the map were subsequently used uncorrected, or if the grassy area in the southeast was initially considered the primary storage area for drums but was later changed to the asphalt area. Photographs from the 1988 IEPA inspections indicate drums of waste were indeed stored on the grassy southeast area, so this area is addressed as a separate unit (SWMU 6).

The Armitage facility received a permit to construct a soil vapor extraction (SVE) system in November of 1990 (IEPA, DLPC, 1990c). A permit to operate the SVE system until 1995 was issued a month later (IEPA, DAPC, 1990). The SVE system was installed by Armitage, and operated for about four months in the fall of 1991 (photographs numbers 1, 2, 3, 5, and 10). The SVE system was then turned off during the winter of 1991/1992, to allow vapors to desorb from the soil matrix. Armitage plans to operate the SVE system for a month in the spring of 1992, and then to conduct limited sampling for the presence of contaminants. If contaminant concentrations are near the soil clean-up objective concentrations, Armitage will conduct an extensive sampling round in an effort to confirm the entire clean-up has been completed (Armitage, 1992b).

## 2.5 REGULATORY HISTORY

Mr. John L. Armitage sent a Notification of Hazardous Waste Activity to the EPA on August 14, 1980 (Armitage, 1980) for the Elk Grove Village Armitage facility. The Notification listed the following wastes from specific sources: K078 and K079. These waste numbers are not included in the current version of 40 CFR 261.33. Acknowledgement of this notification was given by the EPA on September 28, 1981 (EPA, 1981). The facility submitted a RCRA Part A permit application on January 14, 1981 (Armitage, 1981). The application listed the following code, S01 (storage in containers) with a capacity of 30,000 gallons (approximately 550 55-gallon drums) and the following waste: 60,000 gallons annually of spent non-halogenated solvents (F003). The EPA acknowledged this RCRA Part A permit application on March 11, 1982 (EPA, 1982).

Armitage submitted a letter to the EPA March 15, 1982, requesting a change in their RCRA status from a generator and storage facility, to a generator exclusive of storage (Armitage,

1982) In the files available to BVWST, there is no further mention of Armitage's intention to change their RCRA status until the first in a series of four IEPA inspections in 1988 (IEPA, DPLC, 1988a) In the narrative accompanying the June 1988 inspection report Armitage's interest in terminating the facility storage status was mentioned The narrative goes on to say "[t]he inspection revealed overwhelming evidence that Armitage is, in fact, a generator/ storage facility"

Armitage initiated closure of the Elk Grove Village facility in 1989, submitting a closure plan which was approved by the IEPA (TEAM, 1990) The closure plan is not included in the IEPA file materials acquired by BVWST

The results of sampling and analysis conducted in the spring of 1990 on soil from under the outdoor drum storage area (SWMU 4) were submitted to the IEPA and clean-up objectives were requested (IEPA, 1990a) The clean-up objectives defined are listed below (IEPA, DLPC, 1990a)

<u>Parameter</u>	<u>Soil Clean-Up Objective (mg/kg)</u>
Acetone	0.7
Cyclohexanone	35
Ethyl acetate	31.5
Ethylbenzene	1.0
Ethyl ether	7.0
Methylene chloride	0.025
Methyl ethyl ketone	0.35
Methyl isobutyl ketone	0.35
n-Butanol	3.5
Tetrachloroethylene	0.025
Toluene	5.0
Xylene	10.0
Cadmium	0.05

The IEPA Division of Air Pollution Control issued an operating permit for air emission sources consisting of one boiler and 25 paint mixing tanks to John L. Armitage and Company in 1981 (IEPA, DAPC, 1981) This permit was renewed June 16, 1986, with an expiration date of June 19, 1991 (IEPA, DAPC, 1986) In this report it is assumed that operation includes cleaning and therefore any air releases from the cleaning area SWMUs (SWMUs 1 and 2) were permitted activities

Armitage did not have and was not required to have a NPDES permit

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the Armitage facility.

#### 2.6 1 Climate

The Armitage facility is located approximately 18 miles west of Lake Michigan. Climatic data for the city of Chicago was collected for the last thirty-two years through 1990 by the National Weather Bureau at O'Hare Airport. Average daily maximum temperature is 58.7 F and average daily minimum temperature is 39.7 F. Annual net precipitation averages 33.34 inches, and the greatest twenty-four hour rainfall has been 9.35 inches, recorded in August 1987. The average wind speed is 10.3 mph. The prevailing wind is from the west in winter, from the west and south-southwest in the spring, from the southwest in summer, and from the south-southwest in the fall (NWB, 1991).

#### 2.6 2 Flood Plain and Surface Water

The facility is outside of the 100-year and the 500-year flood plains of all the nearby water bodies, and consequently is considered to be in an area of minimal flooding (FEMA, 1982).

The property appears to slope slightly to the south, allowing surface water to runoff to the ditch south of the facility. The nearest water body is Salt Creek about a mile and a half west, which drains into the Des Plaines River fifteen miles to the southeast. At its nearest approach, the Des Plaines River is about six miles east of the Armitage facility. The only wetland exceeding two acres in size within a one mile radius of the facility is a cluster of open water marshes a little less than a mile to the southeast (USDI, 1981).

#### 2.6 3 Geology and Soils

The soil types over much of Cook County have not been mapped in detail by the U.S. Department of Agriculture (1979) because of obscuring urban land use. However, their report contains a regional soil map that classifies the soil near Armitage as gently rolling to nearly level, moderately well drained and poorly drained soils formed in glacial till.

The sediment and rock occurrence expected at the site is an unknown thickness of unconsolidated sediments originating from Pleistocene glacial action (ponded-water clays, tills, and outwash) overlying bedrock composed of sedimentary rock units of Paleozoic age. No site-specific information is currently available about the character of either the unconsolidated materials or the bedrock. However, Berg and Kempton (1988) have used data from the Illinois State Geological Survey's extensive collection of well logs to prepare a series of maps which generally indicate the probable occurrence of sediments and/or bedrock within the interval from the surface to 50 feet in depth. For the area around Armitage, they indicate a probability of at least 50 feet of silty clayey till. The boring log for the Layne Western Company well located about three-quarters of a mile northeast of the Armitage facility identifies clay from 3 to 48 feet in depth, gravel from 48 to 83 feet, and clay with gravel from 83 to 99 feet, with bedrock contact at 99 feet (ISWS, 1990).

#### 2 6 4            Ground Water

Based on geologic mapping data gathered by the Illinois State Geological Survey, Berg and others (1984) prepared a series of maps evaluating the first twenty feet of soil identifies the potential for hazardous substances released at the surface to migrate into the first subjacent water-producing zone. The probability for the Armitage area was deemed to be low because of the projected presence of relatively impermeable materials in the first twenty feet of soil.

In northeastern Illinois, ground water for public and industrial use is or has been obtained from four different water-producing zones within the geologic succession. The first zone is the ground water occurring within the unconsolidated Pleistocene sediments. The second zone is an interval of shallow bedrock units, which are generally in contact with the Pleistocene sediments. The third and fourth zones are two deeper intervals of water-producing rock units. Hughes and others (1966) discuss the character of each of the four zones, their hydrologic properties and the location of their recharge zones. Virtually all wells producing municipal or industrial water within the greater Chicago area pump from one or both of the deep bedrock aquifer zones.

According to the Illinois State Geological Survey circular entitled "Bedrock Aquifers of Northeastern Illinois, a shallow bedrock zone in northeastern Illinois underlies the glacial sediments and is mainly comprised of Silurian dolomite. The upper boundary of this zone is the erosional surface of the bedrock, which is commonly obscured by glacial sediments, and the lower boundary is the upper Ordovician Maquoketa Shale. Water produced from the dolomite is

obtained from fractures and solution openings. The shallow bedrock aquifer zone receives some recharge locally from precipitation (Hughes et al , 1966)

The deep bedrock aquifer zones include the Cambrian-Ordovician aquifer and the Mt Simon aquifer (Hughes et al , 1966). The Cambrian-Ordovician aquifer contains two major zones, the Glenwood-St. Peter aquifer and the Ironton-Galesville aquifer. The top of the Cambrian-Ordovician zone is the Galena-Platteville Dolomite. The Glenwood-St. Peter aquifer is widely utilized where water requirements are less than 200 gallons per minute (gpm). This unit has a hydraulic conductivity between 9 and 15 gallons per day per square foot (gpd/sq ft). The Ironton-Galesville Sandstone aquifer has a hydraulic conductivity between 30 and 40 gpd/sq ft. Recharge to the deep bedrock aquifers is mostly from west and north of the six county metropolitan area, where rocks crop out at the surface or lie immediately below the glacial drift. Minor recharge occurs as leakage through the shallow bedrock aquifer system.

The Mt. Simon aquifer is bounded above by the relatively impermeable shales and siltstones of the upper and middle Eau Claire Formation and below by pre-Cambrian basement rock. The average hydraulic conductivity of this aquifer is 16 gpd/sq ft (Hughes et al , 1966) and recharge is largely from the outcrop region of Cambrian rocks in south-central Wisconsin (Willman, 1971).

## **2.7 RECEPTORS**

The Armitage facility occupies approximately one and a half acres in an industrial area in Elk Grove Village, Cook County, Illinois. Elk Grove Village has a population of approximately 34,000 people.

The facility is bordered on the north by Lunt Avenue and an unoccupied building across the street, on the west by another unoccupied building. On the south side is a drainage culvert and ditch, a railroad, and on the other side of the railroad is an active industrial facility. On the east, at 1375 Lunt Avenue is Topy Precision Manufacturing Inc. The nearest residential area is about a mile west, and the nearest school is Claremont School about a mile and a half west, in this residential area.

The facility had no formal security system. The facility has a gated fence dividing the asphalt area into a northern third for parking, and a southern two-thirds for drum storage.

Facility access was controlled by locking the gate at night. The fence continued along the east side of the outdoor drum storage area. The outdoor drum storage area was not fenced on the south side.

Surface water runoff appears to be to the south where an improved ditch (and culvert) flows along the railroad right-of-way. It is possible that contaminants have washed from sources on site to this ditch and have accumulated in the ditch sediments.

Ground water appears to be protected by tens of feet of relatively impervious glacial till. Ground water does not appear to be affected by chemicals released at the Armitage facility. Ground water in the area is not used for drinking water. Elk Grove Village Water and Sewer Co. uses ground water for emergency purposes.

Sensitive environments are not located on site. The only wetland exceeding two acres in size within a one mile radius of the facility is a cluster of open water marshes a little less than a mile to the southeast. The nearest water body is Salt Creek about a mile and a half west, which drains into the Des Plaines River 15 miles to the southeast. At its nearest approach, the Des Plaines River is about six miles east of the Armitage facility.

### **3.0 SOLID WASTE MANAGEMENT UNITS**

**This section describes the six SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and BVWST observations. Figure 2 shows SWMU locations.**

<b>SWMU 1</b>	<b>Drum Satellite Accumulation Area</b>
<b>Unit Description</b>	<b>This area was used to store drums of spent organic solvent and waste wash water after use to clean mixing tanks. The unit was indoors on an uncurbed concrete floor, no floor drains were present (Photograph 1).</b>
<b>Date of Startup</b>	<b>The unit has probably been used since the plant started operating in 1966.</b>
<b>Date of Closure</b>	<b>This unit has been inactive since the facility's closure in May 1989.</b>
<b>Wastes Managed</b>	<b>This unit was used to store drums of spent solvent (F003/F005) and waste wash water (K086/D006) after use to clean mixing tanks.</b>
<b>Release Controls</b>	<b>The unit was on an uncurbed concrete floor, no floor drains were present.</b>
<b>History of Documented Releases</b>	<b>No releases are documented from this unit.</b>
<b>Observations</b>	<b>The facility is empty and it is difficult to ascertain the precise location of this unit. The description of SWMU Nos. 1 and 2 in the October 21, 1988 Illinois EPA inspection report refer to photographs included in that report. These photographs would help identify these units, but they were not included in the file copy acquired by BVWST.</b>

The walls and roof support pillars in the general cleaning area are heavily spattered with paint residue (Photograph 1)

## **SWMU 2**

### **Tote Container Accumulation Area**

#### **Unit Description.**

This unit was composed of two large mixing tanks located in the four-foot deep 'L' shaped mixing pit with a concrete floor and sides, and no drains. A 1,300-gallon tank housed the waste wash water (K086/D006) and a 1,000-gallon tank housed the spent solvent (F003/F005) (IEPA, DLPC, 1988a). The pit would have acted as secondary containment.

#### **Date of Startup**

The date use of this unit was initiated is unknown.

#### **Date of Closure**

This unit has been inactive since the facility's closure in May 1989. This unit has not undergone RCRA closure.

#### **Wastes Managed**

This unit was used to accumulate spent organic solvent and waste wash water after being used to clean mixing tanks. The 1,300-gallon tank housed the waste wash water (K086/D006) and the 1,000-gallon tank housed the spent solvent (F003/F005).

#### **Release Controls**

The unit was located indoors. The two tote containers were bolted in a four-foot deep pit with concrete floor and sides, and without drains. The concrete pit would have acted as secondary containment (Photograph 2).

#### **History of Documented Releases**

Releases inside the mixing pit were described by Armitage personnel.

#### **Observations**

The tote containers have been removed and the four foot deep concrete pit has been filled with sand and sealed with concrete. The outline of the pit is still visible in the facility concrete floor. The integrity of the pit walls and floor is not evident.

**SWMU 3****Indoor Drum Accumulation Area****Unit Description..**

The Indoor Drum Accumulation Area was located on a concrete floor, at least one floor drain is present (Photograph Nos 3, 4, and 5) This unit was used to accumulate returned, empty drums and drums of waste (IEPA, DLPC, 1988c), particularly when the weather was bad

The exact location and the accumulation period cannot be verified with information currently available to BVWST

**Date of Startup**

The unit was probably active since the plant started operating in 1966 It is also possible that the portion of the building which houses this unit is an addition to the original structure and the unit's use began later

**Date of Closure**

This unit has been inactive since the facility's closure in May 1989 Use of this unit may have been discontinued in October 1988 (IEPA, DLPC, 1988c) The unit has not undergone RCRA closure

**Wastes Managed**

This unit managed wastes in drums The type of waste is unknown

**Release Controls**

This unit was located indoors on a concrete floor, at least one floor drain is present

**History of Documented Releases**

No releases are documented from this unit

**Observations**

The floor in this area is stained with spilled coating and pigments (Photograph Nos 4 and 5) in several spots There are cracks in the concrete floor and drains are present

**SWMU 4****Outdoor Drum Storage Area****Unit Description.**

The Outdoor Drum Storage Area was located on an asphalt pad on the east side of the property. The unit was used to store drums of spent solvent (F003/F005) and waste wash water (K086/D006). Drums with paint residue (D001/F003/F005) that had been returned by customers were probably also stored on the drum storage pad before recycling.

**Date of Startup**

The unit has probably been used since the plant started operating in 1966.

**Date of Closure**

This unit has been inactive since the facility's closure in May 1989. The unit is currently undergoing RCRA closure with an IEPA approved Closure Plan for soil remediation using vapor extraction (Photograph Nos. 3, 6, 7, 8, 10 and 11). Soil sampling was conducted in 1990. The results of this sampling are presented in Attachments D and E.

**Wastes Managed**

The wastes stored in containers in this unit included drums of spent solvent (F003/F005) and waste wash water (K086/D006). Drums with paint residue (D001/F003/F005) that had been returned by customers were probably also stored on the drum storage area before recycling.

**Release Controls**

This unit was located on an asphalt pad without containment barriers. An in-situ soil vapor extraction system was installed in September, 1991, and operated four months of that year.

**History of Documented Releases.**

Releases have been documented from this unit by the IEPA during facility inspections (IEPA, DPLC, 1982, 1988a, 1988b, 1988c). These releases consisted of spills from improperly maintained drums. Sampling conducted by Armitage contractors in 1990 verified the presence of methylene chloride, toluene, ethylbenzene,

xylene, silver, cadmium, chromium, and lead in the soil below the asphalt pad (IEPA, DLPC, 1990b)

**Observations.**

The asphalt pad is in poor condition, with numerous cracks in the surface (Photograph Nos 6, 8, 9 and 12) The asphalt is stained with paint and the impressions of the drums that used to be stored are visible (Photograph Nos 6 and 8) The asphalt on the west half of the area has been removed to allow the removal of five underground storage tanks in 1990 (Photograph Nos 10, 12, and 14) The installation of the soil vapor extraction system required the removal of asphalt for a trench directly under the drum storage (Photograph Nos 1, 2, and 5) The gate in the fence on the north side of the area is left open now that the facility is inactive, and the fence has been allowed to deteriorate The fence on the east side of the drum storage area is in good condition The south side of the area has never been fenced

**SWMU 5**

**Municipal Waste Dumpster**

**Unit Description.**

The Municipal Waste Dumpster was located at the south central edge of the asphalt pad on the east side of the facility This unit was a commercial dumpster leased by Armitage from BFI The dumpster at the facility was photographed on September 26, 1988, and appears to be approximately four cubic yards in size, and covered

**Date of Startup**

Unknown It can be assumed that Armitage leased a dumpster since the plant started operating in 1968

**Date of Closure**

This unit has been inactive since the facility's closure in May 1989

**Wastes Managed**

This unit was used for accumulation of waste that could be disposed in a municipal landfill, including general refuse and what appeared to be waste paint (D001/F003/F005) (IEPA, DLPC, 1988c)

<b>Release Controls:</b>	<b>The unit was located on asphalt and in the 1988 photograph appeared to be closed with a lid</b>
<b>History of Documented Releases</b>	<b>An apparent release of paint waste to surface soil was documented during the IEPA facility inspection conducted September 26, 1988</b>
<b>Observations</b>	<b>The municipal waste dumpster is no longer maintained on site The location of the unit is no longer apparent</b>
<b>SWMU 6</b>	<b>Southeast Grassy Area</b>
<b>Unit Description</b>	<p><b>The map accompanying the RCRA Part A permit application and IEPA inspection reports (until after the facility closed in 1989) show the Outdoor Drum Storage Area in the southeast corner of the facility; an area covered by grass (Photograph Nos 12 and 13) It is unclear if this was a mistake and copies of the map were subsequently used uncorrected, or if the grassy area in the southeast was initially considered the primary storage area for drums and was later changed to the asphalt area Some photographs from the 1988 IEPA inspections indicate drums of waste were stored on the southeast grassy area and that releases occurred</b></p> <p><b>The exact accumulation/storage period cannot be verified with information currently available to BVWST However, it is possible the storage period may have exceeded 90 days</b></p>
<b>Date of Startup</b>	<b>The unit has probably been used since the plant started operating in 1966</b>
<b>Date of Closure</b>	<p><b>This unit has been inactive since the facility's closure in May 1989 The unit has not undergone RCRA closure Soil in the northeast portion of the unit was sampled in June 1990, in association with releases from SWMU 4 Representative values of ethyl benzene are</b></p>

**presented in Attachment D No sampling specifically associated with releases in this area has occurred**

**Wastes Managed.**

**The wastes stored in this area probably included drums of spent solvent (F003/F005), waste wash water (K086/D006), and drums with paint residue (D001/F003/F005) that had been returned by customers**

**Release Controls**

**This unit was located outdoors on soil There were no release controls**

**History of Documented Releases**

**Photographs from the 1988 IEPA inspections indicate drums of water were stored on the southeast grassy area, and that releases occurred**

**Observations**

**There is no visible evidence of spills in the southeast grassy area. Part of the soil vapor extraction system piping installed for the cleanup of SWMU 4 transverses this unit (Photograph No 10) This part of the SVE system does not collect vapors but transports soil gas collected in SWMU 4 to the pump**

#### **4.0 AREAS OF CONCERN**

**BVWST did not identify any AOCs during the PA/VSI**

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## 5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified six SWMUs and no AOCs at the Armitage facility. Background information on the facility's location, operations, waste generating processes, history of documented releases, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. Following are BVWST's conclusions and recommendations for each SWMU. Table 3 summarizes the SWMUs at the Armitage facility and recommended further actions.

### **SWMU 1                      Drum Satellite Accumulation Area**

**Conclusions**                      This currently inactive unit was maintained indoors on a concrete floor. The potential that releases to the soil, ground water, surface water, or air occurred is low. However, the walls and roof support pillars are heavily spattered with dried paint.

**Recommendations**              No further action is recommended.

### **SWMU 2                      Tote Container Accumulation Area**

**Conclusions**                      This currently inactive unit was located indoors in a four-foot deep pit with concrete floor and sides, and without drains. The four-foot deep concrete pit would have acted as secondary containment, but because the pit has been filled with sand and sealed with concrete, the integrity of the concrete is not evident. It is possible that spills into the pit may have allowed releases to the surrounding soil through cracks. The potential that release to the ground water, surface water or air occurred is low.

**Recommendations**              Borings should be conducted in the pit area and samples of the soil below the pit should be collected. The samples should be analyzed for the hazardous constituents with clean-up objectives for this facility. If the analyses confirm the presence of any of those hazardous constituents, the area will require appropriate remediation, decontaminating or removing soils found to contain hazardous constituents.

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TABLE 3  
SWMU SUMMARY

<u>SWMU</u>	<u>Dates of Operation</u>	<u>Evidence of Release</u>	<u>Recommended Further Action</u>
1 Drum Satellite Accumulation Area	Unknown, assumed to be since the facility opened in 1966 until it closed in May 1989	Walls and roof support pillars heavily spattered with paint residue	No further action is recommended
2 Tote Container Accumulation Area	Unknown, assumed to be since the facility opened in 1966 until it closed in May 1989	Armitage personnel stated spills had occurred in the pit	Borings should be conducted in the pit area and soil sample analyzed to confirm that hazardous constituents from paint residues do not remain. If these hazardous constituents are found, soils should be remediated.
3 Indoor Drum Accumulation Area	Unknown, assumed to be since the facility opened in 1966 until it closed in May 1989, but possibly discontinued in October 1988	Paint residue is apparent on the concrete slab floor of the area	Paint residue should be removed and the floors steam cleaned, rinse water should be sampled to verify adequate cleaning
4 Outdoor Drum Storage Area	Unknown, assumed to be since the facility opened in 1966 until it closed in May 1989	Spills were documented in 1982, and three 1988 IEPA site inspections. Soil sampling in 1990 has revealed organic volatile and inorganic compounds. Paint residue is currently visible on degraded asphalt surface.	Clean-up and confirmatory sampling should continue according to IEPA approved closure plan

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TABLE 3 (Continued)

SWMU SUMMARY

<u>SWMU</u>	<u>Dates of Operation</u>	<u>Evidence of Release</u>	<u>Recommended Further Action</u>
5 Municipal Waste Dumpster	Unknown, assumed to be since the facility opened in 1966 until it closed in May 1989	Spill documented in the September 1988 IEPA site inspection	Sampling conducted for SWMU 4 should include this location and consider possible releases from this unit
6 Southeast Grassy Area	Unknown, assumed to be since the facility opened in 1966 until it closed in May 1989	Spills documented in the August 1988 IEPA site inspection report	Photographic analysis, with soil sampling of locations identified and other probable drum storage locations This unit should undergo RCRA closure

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**SWMU 3                      Indoor Drum Accumulation Area**

**Conclusions.**                      This unit was located indoors on a concrete floor, but cracks are evident in the concrete and paint residue can be observed on the floor. The possibility that release to the soil, ground water, or surface water occurred is low.

**Recommendations:**              Paint residue should be removed and the floor steam cleaned. Rinse water should be sampled to verify adequate cleaning.

**SWMU 4                      Outdoor Drum Storage Area**

**Conclusions**                      Releases to the asphalt surface and the soil beneath this outdoor unit are documented. The soil in this area is currently being cleaned in accordance with an IEPA approved closure plan.

Release to ground water is not likely because there is probably 40 to 50 feet of relatively impermeable glacial till below the facility. However, in the case of a release, removal of contaminated soil is recommended because the infiltration from rain is not being eliminated. The migration of hazardous waste constituents would be slow, but it would still occur.

This unit has been inactive since May 1989, and no waste is stored in the unit. Any unregulated air release occurring during the SWMUs active period is not considered significant for this report.

There is high potential that constituents released from SWMU 4 were dissolved by precipitation and carried in runoff to the ditch south of the facility. This is addressed under SWMU 6.

**Recommendations**              Clean-up activities, consisting of in-situ soil vapor extraction and confirmatory sampling, should be continued. Clean-up of this area should be done in conjunction with any work in SWMU 6, the southeast grassy area, where drums were stored and SWMU 5, the municipal waste dumpster located on the south central side of the asphalt. The paint residue on the

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pad's asphalt surface does not appear to be addressed in the Closure Plan, this paint residue should be removed, the asphalt steam cleaned, and confirmatory sampling of the rinse water conducted

#### **SWMU 5**

#### **Municipal Waste Dumpster**

#### **Conclusions**

A release from this unit onto the asphalt has been recorded and additional releases possibly occurred. This unit was located adjacent to the outdoor drum storage area, (SWMU 4), and any release to the soil below the asphalt is being addressed in conjunction with the closure of SWMU 4.

Release to ground water is not likely because there is probably 40 to 50 feet of relatively impermeable glacial till below the facility.

This unit has been inactive since May 1989, and no waste is stored in the unit. Any unregulated air release occurring during the SWMUs active period is not considered significant for this report.

There is high potential that constituents released from SWMU 5 were dissolved by precipitation and carried in runoff to the ditch south of the facility. This is addressed under SWMU 6.

#### **Recommendations**

During the soil sampling for SWMU 4, particular attention should be paid to the soil on the south central side of the asphalt pad to ensure that any releases in this area, associated specifically with SWMU 5 will be adequately addressed.

#### **SWMU 6**

#### **Southeast Grassy Area**

#### **Conclusions**

Releases to the soil in this unprotected area were documented in the August 1988 IEPA site inspection photographs. It is possible that other releases occurred. Any release would probably have been confined to the immediate area of a leaking drum. It is possible this grassy area was the original drum storage area but storage was later shifted to the asphalt.

RELEASED

DATE

RIN #

INITIALS

Release to ground water is not likely because there is probably 40 to 50 feet of relatively impermeable glacial till below the facility. However in the case of the a release, removal of contaminated soil is recommended because the infiltration from rain is not being eliminated. The migration of hazardous waste constituents would be slow, but it would still occur.

This unit has been inactive since May 1989, and no waste is stored in the unit. Any unregulated air release occurring during the SWMUs active period is not considered significant for this report.

There is high potential that constituents released from SWMU 4 were dissolved by precipitation and carried in runoff to the ditch south of the facility.

**Recommendations.**

Pictures taken during IEPA inspections should be checked to identify releases in this area. The possibility that this unpaved area was the original drum storage area should be investigated. Sampling of the soil should be conducted in locations identified in the photographic analysis, and in other probable drum storage locations (i.e., near the edge of the asphalt, near the eastern perimeter, near the doorways, along the east wall, behind the building, and outside the southwest door). Samples should be analyzed for the constituents listed in the Armitage facility soil clean-up objectives specified by the IEPA in 1990. These constituents and their clean-up objectives are listed in Section 2.5 of this report. This unit should be closed in a manner that complies with RCRA closure requirements.

A sample of the sediment in the ditch south of the facility should be collected near SWMU 6, and analyzed for heavy metals and other compounds with site-specific cleanup objectives.

## **REFERENCES**

- John L Armitage and Company (Armitage), 1980 Notification of Hazardous Waste Activity, August 14**
- Armitage, 1981 RCRA Part A Permit Application, January 14**
- Armitage, 1982 Personal communication to U.S EPA, Waste Management Branch, letter dated March 15**
- Armitage, 1992a Sal DeLuca, Salesman, Visual Site Inspection, March 13**
- Armitage, 1992b Norman S Armitage, President, personal communication to BVWST, Margie Casserly, Environmental Engineer, letter dated April 3**
- R C Berg and J P Kempton, 1988 "Stack-Unit Mapping of Geologic Materials in Illinois to a Depth of 15 Meters", Illinois State Geological Survey, Circular 542**
- R C Berg et al , 1984 "Potential for Contamination of Shallow Aquifers in Illinois", Illinois State Geological Survey, Circular 532**
- R E Bergstrom et al , 1955 "Groundwater Possibilities in Northeastern Illinois", Illinois State Geological Survey, Circular 198**
- Federal Emergency Management Agency (FEMA), 1982 Flood Insurance Rate Map series, panel number 170088 0015 C, May 14**
- G E Hughes et al , 1966 "Bedrock Aquifers of Northeastern Illinois", Illinois State Geological Survey, Circular 406**
- Illinois Environmental Protection Agency (IEPA) Division of Air Pollution Control, 1981 Operating Permit No 81100073, November 23**
- IEPA, Division of Air Pollution Control, 1986 Operating Permit No 81100073 Renewal, June 16**
- IEPA, Division of Air Pollution Control, 1990 Operating Permit, Application No 90110038, for soil vapor extraction system, December 17**
- IEPA, Division of Land Pollution Control, 1982 RCRA Inspection Report, February 4**
- IEPA, Division of Land Pollution Control, 1988a RCRA Inspection Report, June 16**
- IEPA, Division of Land Pollution Control, 1988b RCRA Inspection Report, August 23**
- IEPA, Division of Land Pollution Control, 1988c RCRA Inspection Report, September 26**
- IEPA, Division of Land Pollution Control, 1988d RCRA Inspection Report, October 26**
- IEPA, Division of Land Pollution Control, 1989 RCRA Inspection Report, November 9**

**IEPA, Division of Land Pollution Control, 1990a. Letter to Mr Sal DeLuca, John L Armitage and Company, dated October 22**

**IEPA, Division of Land Pollution Control, 1990b Karen Nachtwey, Division of Land Pollution Control Permits, in personal communication to IEPA, Tim Kluge, Division of Water Pollution Control - Permits, letter dated September 4**

**IEPA, Division of Land Pollution and Control, 1990c Construction Permit No 90110038, for soil vapor extraction system, November 30**

**Illinois State Water Survey (ISWS), 1990 Trudy K Dhal, Technical Assistant, Office of Ground-Water Information, personal communication to IEPA, Karen Nachtwey, Department of Land Pollution Control, letter dated August 29, well logs included as enclosures**

**National Weather Bureau (NWA), 1991 O'Hare Airport, personal communication to BVWST, November 8, 1991**

**O'Brien & Associates, Inc , 1988 Report on Removal of Storage Tanks at the John L Armitage & Company facility, April 8**

**TEAM Inc 1990 "Closure Documentation Report for a Container Storage Facility John L Armitage & Company", for John L Armitage and Company, July**

**U S Department of Agriculture, 1979 "Soil Survey of DuPage and Cook Counties"**

**U.S Department of the Interior (USDI), 1980 Geological Survey, Arlington Heights, Illinois Quadrangle and Elmhurst, Illinois Quadrangle, Topographic Maps**

**USDI, 1981 National Wetlands Inventory, panels for Arlington Heights, Illinois, November, and Elmhurst, Illinois, November**

**U S Environmental Protection Agency (EPA), 1981 Acknowledgement of Notification of Hazardous Waste Activity, September 28**

**EPA, 1982 Acknowledgement of RCRA Part A Permit Application, March 11**

**H B Willman, 1971 "Summary of the Geology of the Chicago Area", Illinois State Geological Survey, Circular 460**

**ATTACHMENT A**

**EPA PRELIMINARY ASSESSMENT FORM 2070-12**



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I IDENTIFICATION

01 STATE  
IL

02 SITE NUMBER  
ILD 047 572 028

II SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)  
John L. Armitage and Company

02 STREET ROUTE NO OR SPECIFIC LOCATION IDENTIFIER  
1313 Lunt Avenue

03 CITY  
Elk Grove Village

04 STATE  
IL

05 ZIP CODE  
60007

06 COUNTY  
Cook

07 COUNTY  
CODE  
031

08 CONG  
DIST  
6

09 COORDINATES LATITUDE  
41° 59' 30" N | LONGITUDE  
087° 58' 00" W

10 DIRECTIONS TO SITE (Starting from nearest public road)  
From Chicago, north on I-90 to the Elmhurst Road exit, south on Elmhurst Road five blocks, west on Lunt Avenue to 1313 Lunt Avenue

III RESPONSIBLE PARTIES

01 OWNER (if known)  
John L. Armitage and Company

02 STREET (Business, mailing, residential)  
545 National Drive

03 CITY  
Gallatin

04 STATE  
TN

05 ZIP CODE  
37006

06 TELEPHONE NUMBER

07 OPERATOR (if known and different from owner)

08 STREET (Business, mailing, residential)

09 CITY

10 STATE

11 ZIP CODE

12 TELEPHONE NUMBER

13 TYPE OF OWNERSHIP (Check one)

☒ A PRIVATE ☐ B FEDERAL \_\_\_\_\_  
(Agency Name)

☐ C STATE

☐ D COUNTY

☐ E MUNICIPAL

☐ F OTHER \_\_\_\_\_  
(Specify)

☐ G UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☒ A RCRA 3010 DATE RECEIVED 08/14/80  
MONTH DAY YEAR

☐ B UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED

\_\_\_\_/\_\_\_\_/\_\_\_\_  
MONTH DAY YEAR

☐ C NONE

IV CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

BY (Check all that apply)

☒ A EPA

☒ B EPA CONTRACTOR

☐ C STATE

☐ D OTHER CONTRACTOR

☒ YES

DATE 03/13/92

☐ E LOCAL HEALTH OFFICIAL

☐ F OTHER \_\_\_\_\_

(Specify)

☐ NO

CONTRACTOR NAME(S) B&V Waste Science and Technology Corp.

02 SITE STATUS (Check one)

☐ A ACTIVE

☒ B INACTIVE

☐ C UNKNOWN

03 YEARS OF OPERATION

1988 | 1989  
BEGINNING YEAR ENDING YEAR

☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT KNOWN OR ALLEGED

Soil sampling and analysis has revealed presence of ethylbenzene, toluene, xylene and other organic and inorganic regulated substances

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Soil contact and contact with dried spills are the primary potential hazards

V PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 Waste Information and Part 3 Description of Hazardous Conditions and Incidents.)

☐ A HIGH

☒ B MEDIUM

☐ C LOW

☐ D NONE

(Inspection required promptly)

(Inspection required)

(Inspect on time-available basis)

(No further action needed, complete current disposition form)

VI INFORMATION AVAILABLE FROM

01 CONTACT  
Kevin Pierard

02 OF (Agency/Organization)  
U S EPA

03 TELEPHONE NUMBER  
(312) 886-4448

04 PERSON RESPONSIBLE FOR ASSESSMENT  
Marge Casserly

05 AGENCY

06 ORGANIZATION  
BVWST

07 TELEPHONE NUMBER  
(312) 346-3775

08 DATE  
5/8/92  
MONTH DAY YEAR



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 2 - WASTE INFORMATION

I IDENTIFICATION

01 STATE  
IL

02 SITE NUMBER  
ILD 047 572 028

II WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A SOLID ☐ E. SLURRY  
☐ B. POWDER, FINES ☐ F LIQUID  
☐ C SLUDGE ☐ G GAS

☐ D OTHER Soil  
(Specify)

02 WASTE QUANTITY AT SITE

(Measure of waste quantities  
must be independent)

TON \_\_\_\_\_

CUBIC YARDS 150-300

NO OF DRUMS \_\_\_\_\_

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A TOXIC ☐ H IGNITABLE  
☐ B. CORROSIVE ☐ I HIGHLY VOLATILE  
☐ C. RADIOACTIVE ☐ J EXPLOSIVE  
☐ D PERSISTENT ☐ K REACTIVE  
☐ E SOLUBLE ☐ L INCOMPATIBLE  
☐ F INFECTIOUS ☐ M. NOT APPLICABLE  
☐ G INFLAMMABLE

III WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	ONLY WASTE			
SOL	SOLVENTS	150-300	CUYD	Contaminated Soil
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	Acetone	067-64-1	Drums		
	Cyclo Hexanone	108-94-1	Drums		
	Ethyl Acetate	141-78-6	Drums		
	Ethyl Benzene	100-41-4	Drums		
	Ethyl Ether	060-29-7	Drums		
	Methylene Chloride	075-09-2	Drums		
	Methyl Ethyl Ketone	078-93-3	Drums		
	Methyl Isobutyl Ketone	108-10-1	Drums		
	N-Butanol	071-36-3	Drums		
	Tetrachloroethylene	127-18-4	Drums		
	Toluene	108-88-3	Drums		
	Xylene		Drums		
	Cadmium	7440-43-9	Drums		

V FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I IDENTIFICATION

01 STATE  
IL

02 SITE NUMBER  
IL D 047 572 028

II HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ B. SURFACE WATER CONTAMINATION  
03 POPULATION POTENTIALLY AFFECTED 0

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☒ POTENTIAL

☐ ALLEGED

Runoff from outdoor storage areas has a high potential to have carried contaminants to ditch on south side of the facility

01 ☐ C. CONTAMINATION OF AIR  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☒ POTENTIAL

☐ ALLEGED

If remedial activities include moving contaminated soil, the potential for worker exposure should be addressed

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ E. DIRECT CONTACT  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ F. CONTAMINATION OF SOIL  
03 AREA POTENTIALLY AFFECTED 1/2  
(Acres)

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

6-16-88 IEPA facility inspection - ABT 200 partial drums, many uncovered and leaking

8-26-88 IEPA facility inspection - No cleanup conducted, additional spills

9-26-88 IEPA facility inspection - Some cleanup conducted, additional spills

7-90 IEPA approved soil sampling - ethyl benzene concentrations up to 900,000 ppb, other contaminants identified

01 ☐ G. DRINKING WATER CONTAMINATION  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ H. WORKER EXPOSURE/INJURY  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ I. POPULATION EXPOSURE/INJURY  
03 POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Not applicable



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I IDENTIFICATION

01 STATE  
II

02 SITE NUMBER  
ILD 047 872 028

II HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J DAMAGE TO FLORA  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ K DAMAGE TO FAUNA  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☐ L CONTAMINATION OF FOOD CHAIN  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☒ M UNSTABLE CONTAINMENT OF WASTES  
03 POPULATION POTENTIALLY AFFECTED 0

02 ☐ OBSERVED (DATE \_\_\_\_\_)  
04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

See contamination of soil

01 ☐ N DAMAGE TO OFF-SITE PROPERTY  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

Not applicable

01 ☒ O CONTAMINATION OF SEWERS DRAINS WWTPS  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

Runoff from outdoor storage areas has a high potential to have carried contaminants to ditch on south side of the facility

01 ☐ P ILLEGAL/UNAUTHORIZED DUMPING  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

Not applicable

06 DESCRIPTION OF ANY OTHER KNOWN POTENTIAL, OR ALLEGED HAZARDS

Not applicable

III TOTAL POPULATION POTENTIALLY AFFECTED \_\_\_\_\_

IV COMMENTS

V SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Illinois Environmental Protection Agency inspection reports

**ATTACHMENT B**

**VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS**

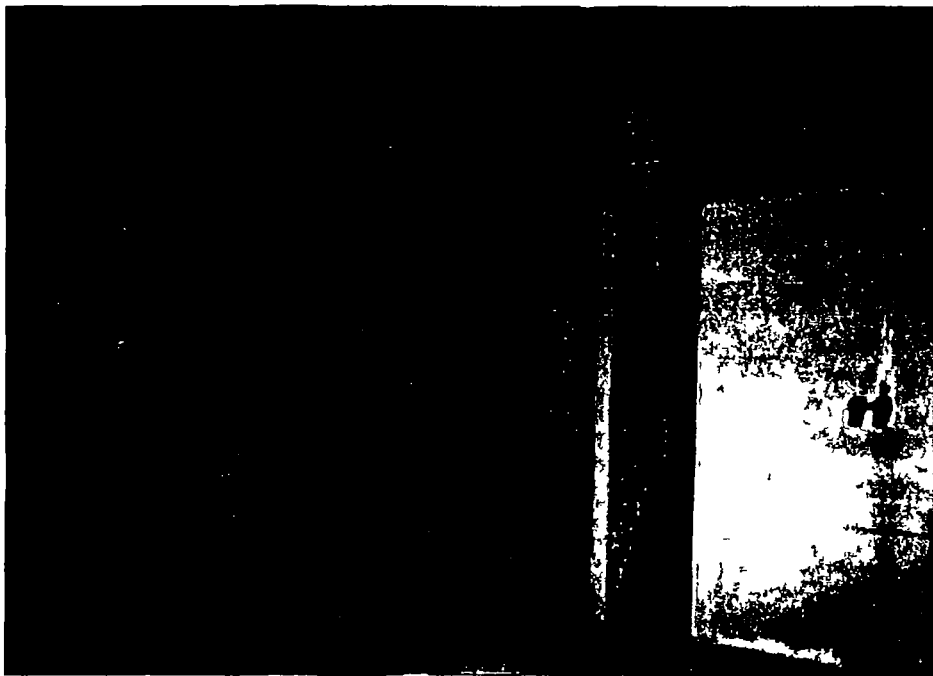
**John L. Armitage and Company**  
**1313 Lunt Avenue**  
**Elk Grove Village, Cook County, Illinois**

**Facility Representatives.** **Sal DeLuca**

**Photographer** **Margie Casserly, BVWST**

**Summary of Activities**

The visual site inspection (VSI) began at 0915. The inspection team met Mr. DeLuca in the Armitage parking lot and proceeded to conduct the inspection through the inactive facility. Mr. DeLuca answered questions and described facility operations and procedures. The inspection team was referred to the Armitage headquarters for documentation of sampling and closure activities. Photographs were taken of SWMU locations, though all waste and equipment has been removed from the facility. The inspection was concluded at 1045.



Photograph No 1

Orientation Northeast

Description Garage door just north of former cleaning are drum satellite accumulation area (SWMU 1)

Location SWMU 1

Date 03/13/92



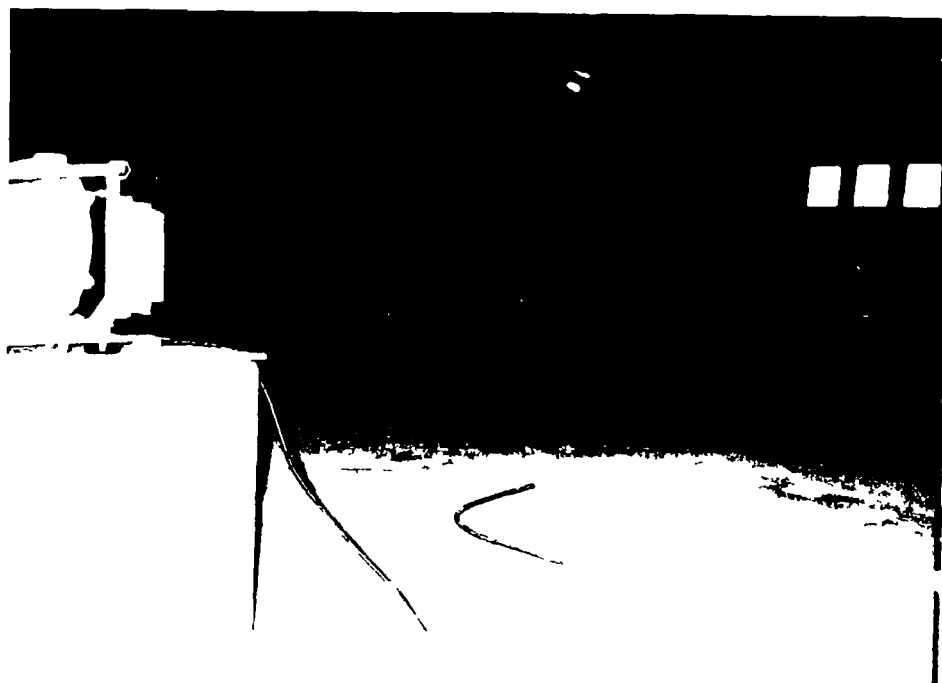
Photograph No 2

Orientation Southeast

Description Former mixing pit, now filled with sand and cement Faint L-shape is visible in floor  
Drains are located near pillar on right Fire-proof power room in center background  
(SWMU 2)

Location SWMU 2

Date 03/13/92



Photograph No 3

Orientation Southwest

Description Former storage room for raw materials and indoor drum accumulation area (SWMU 3)

Location SWMU 3

Date 03/13/92



**Photograph No 4**

**Orientation Southwest**

**Description Pigment on floor of former raw material storage room and indoor drum  
accumulation area (SWMU 3)**

**Location SWMU 3**

**Date 03/13/92**



Photograph No 5

Orientation West

Location SWMU 4

Date 03/13/92

Description Pigment on floor of former raw material storage room and indoor drum accumulation area (SWMU 3) Floor drain visible Crack apparent in concrete slab floor



**Photograph No 6**

**Orientation South**

**Description SWMU 4 Trench excavated through the asphalt for installation of the soil vapor  
extraction system**

**Location SWMU 4**

**Date 03/13/92**



Photograph No 7

Location SWMU 4

Orientation Northwest

Date 03/13/92

Description SWMU 4 SVE trench through center of photo (in shadow) SWMU 6 disturbed soil indicates area where underground fuel tanks were removed Former mixing tank cleaning area was inside by windows, south of garage door



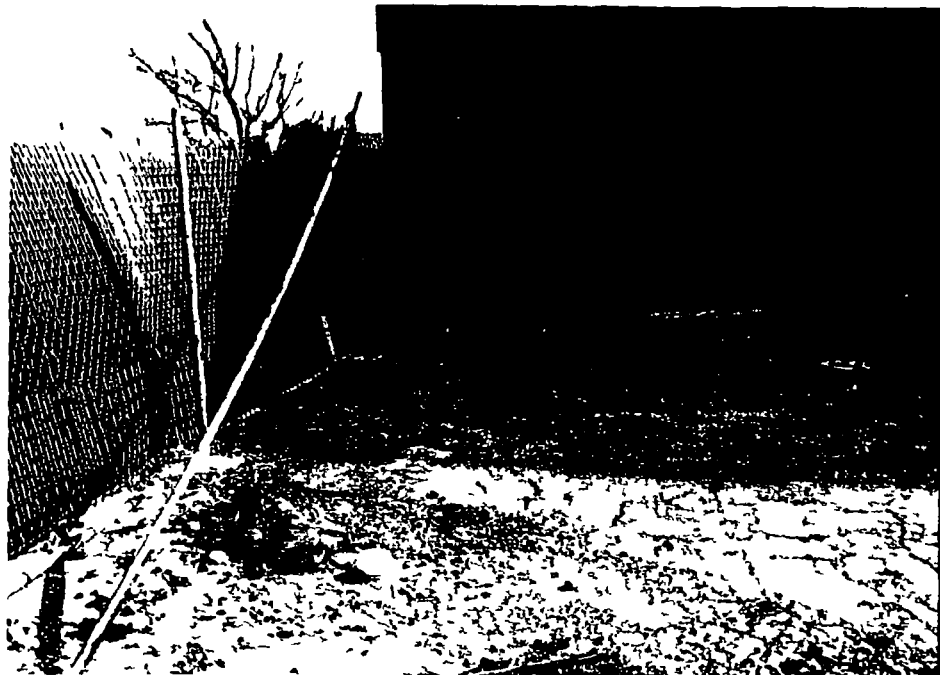
Photograph No 8

Orientation West

Description SWMU 4 SVE trench cut through asphalt of former drum storage area Impressions of drums are still visible in the asphalt

Location SWMU 4

Date 03/13/92



**Photograph No 9**

**Orientation East**

**Description SWMU 4 Former drum storage area, north of the SVE trench**

**Location SWMU 4**

**Date 03/13/92**



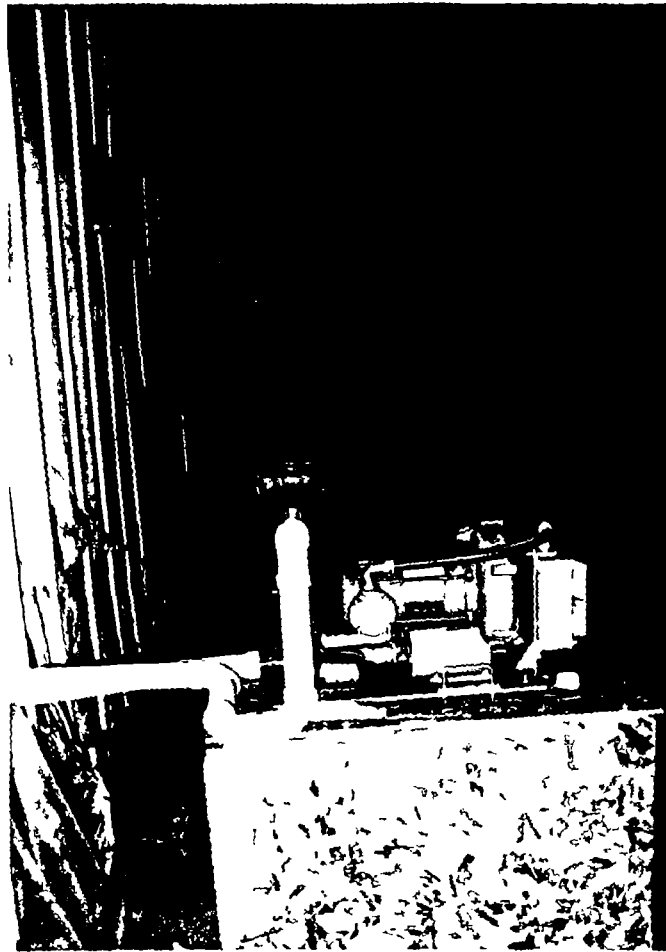
**Photograph No 10**

**Orientation Southwest**

**Description SVE system piping entering building and vent of the same system to the roof**

**Location SWMU 4**

**Date 03/13/92**



Photograph No 11

Orientation South

Description SVE system pump Feed pipe and exhaust pipe enter from left

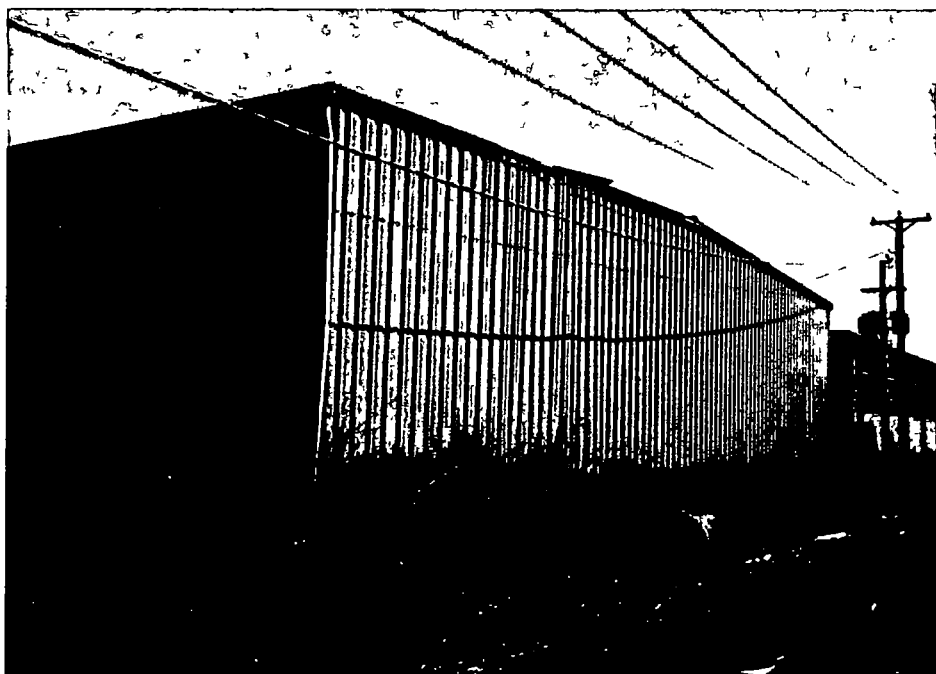
Location SWMU 4

Date 03/13/92



**Photograph No 12**  
**Orientation Southwest**  
**Description Southeast corner of the facility (SWMU 6)**

**Location SWMU 6**  
**Date 03/13/92**



**Photograph No 13**  
**Orientation Northeast**  
**Description Southwest corner of the facility The drainage ditch and culvert are carrying water**  
**Background shows SWMU 6**

**Location SWMU 6**  
**Date 03/13/92**



Photograph No 14  
Orientation Northwest  
Description Area where USTs were removed

Location Armitage  
Date 03/13/92

**ATTACHMENT C**  
**VISUAL SITE INSPECTION FIELD NOTES**

# CURVE FORMULAS

$T = R \tan \frac{1}{2} I$	$R = T \cot \frac{1}{2} I$	Chord def = $\frac{\text{chord}^2}{R}$
$T = \frac{50 \tan \frac{1}{2} I}{\sin \frac{1}{2} D}$	$R = \frac{50}{\sin \frac{1}{2} D}$	No chords = $\frac{1}{D}$
$\sin \frac{1}{2} D = \frac{50}{R}$	$E = R \sec \frac{1}{2} I$	T in def = $\frac{1}{2}$ chord def
$\sin \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$	$E = T \tan \frac{1}{2} I$	

The square of any distance divided by twice the radius, will equal the distance from tangent to curve very nearly

To find angle for a given distance and deflection

Rule 1 Multiply the given distance by 0.745 (def for 1° for 1 ft) and divide given deflection by the product

Rule 2 Multiply given deflection by 57.3 and divide the product by the given distance

To find deflection for a given angle and distance Multiply the angle by 0.745 and the product by the distance

## GENERAL DATA

RIGHT ANGLE TRIANGLES Square the altitude divide by twice the base Add quotient to base for hypotenuse

Given Base 100 Alt 10  $10^2 - 200 = 5$   $100 + 5 = 105$  hyp

Given Hyp 100 Alt 25  $25^2 - 200 = 3$   $125 - 3 = 122$   $125 = 96$   $97.5 = 114.5$

Error in first example .002 in last .035

To find tons of Rail in one mile of track multiply weight per yard by 11, and divide by 7

LEVELLING The correction for curvature and refraction in feet and decimals of feet is equal to  $0.674 d^2$ , where d is the distance in miles. The correction for curvature alone is closely,  $\frac{1}{2} d^2$ . The combined correction is negative

PROBABLE ERROR If  $d_1, d_2, d_3$ , etc are the discrepancies of various results from the mean and if  $\sum d^2$  = the sum of the squares of these differences and n = the number of observations then the probable error of the mean =  $\pm 0.6745 \sqrt{\frac{\sum d^2}{n(n-1)}}$

## MINUTES IN DECIMALS OF A DEGREE

1	0.0167	11	0.0033	21	0.0017	31	0.0010	41	0.0006	51	0.0004
2	0.0333	12	0.0044	22	0.0022	32	0.0011	42	0.0007	52	0.0005
3	0.0500	13	0.0056	23	0.0033	33	0.0013	43	0.0008	53	0.0006
4	0.0667	14	0.0067	24	0.0044	34	0.0015	44	0.0009	54	0.0007
5	0.0833	15	0.0078	25	0.0056	35	0.0017	45	0.0010	55	0.0008
6	0.1000	16	0.0089	26	0.0067	36	0.0019	46	0.0011	56	0.0009
7	0.1167	17	0.0100	27	0.0078	37	0.0021	47	0.0012	57	0.0010
8	0.1333	18	0.0111	28	0.0089	38	0.0023	48	0.0013	58	0.0011
9	0.1500	19	0.0122	29	0.0100	39	0.0025	49	0.0014	59	0.0012
10	0.1667	20	0.0133	30	0.0111	40	0.0027	50	0.0015	60	0.0013

## INCHES IN DECIMALS OF A FOOT

1	0.01	11	0.0018	21	0.0004	31	0.0001	41	0.0000	51	0.0000
2	0.02	12	0.0022	22	0.0005	32	0.0001	42	0.0000	52	0.0000
3	0.03	13	0.0027	23	0.0006	33	0.0001	43	0.0000	53	0.0000
4	0.04	14	0.0031	24	0.0007	34	0.0001	44	0.0000	54	0.0000
5	0.05	15	0.0036	25	0.0008	35	0.0001	45	0.0000	55	0.0000
6	0.06	16	0.0040	26	0.0009	36	0.0001	46	0.0000	56	0.0000
7	0.07	17	0.0045	27	0.0010	37	0.0001	47	0.0000	57	0.0000
8	0.08	18	0.0050	28	0.0011	38	0.0001	48	0.0000	58	0.0000
9	0.09	19	0.0055	29	0.0012	39	0.0001	49	0.0000	59	0.0000
10	0.10	20	0.0060	30	0.0013	40	0.0001	50	0.0000	60	0.0000

3-13-92 Jim V. Kurlitz ①  
 00.15 On site at Armitage  
 Margie Casserly, and Sal  
 Delga facility is no longer  
 operating since March 1988  
 photo #1 ~~1st~~ SVE trench  
 photo #2 north view of SVE  
 trench, and photo #3 piping  
 into building. Operations have  
 closed to consolidate from  
 5 facilities to 3 facilities  
 photo #4 underground  
 storage (previous) Asked  
 for any documents or  
 reports on sampling at  
 VST locations photo #5,  
 impressions of old drums.  
 Back parking lot has a  
 fence which apparently  
 used to be locked for  
 security. 4 gals dirty  
 wash solvent (ketone,  
 toluene, MEK) mixture per  
 wash 1 drum every  
 day and a half of  
 wash solvent (4 drums wk)  
 2-13-07 Jim V. Kurlitz

3-13-92 John V. Kunkler

1968 four foot tank pit

in there to work at the waist height. 4 ft square tanks. Pit is now filled with sand and 4-inches of concrete bottom of pit lined with concrete spill occurred in the 70s and was just pumped out. 55-gal drum of dirty water wash + tub area used to wash and clean filters and then placed in the satellite 55-gal drum of wash solvent.

10 30 tan along east wall of manufacturing area to vent out any fumes. Mix pigments with water grinding machines water cooled went into drains into the sewer system. Monitored by village.

3-13-92 John V. Kunkler

2 3-13-92 John V. Kunkler

After obtaining approximately 80 or 90 drums of waste solvents water base paints which generated dirty water sent into drums. Separate from wash solvents no air permits or no water discharged into sewer permit for boiler used for heating for early 1987

Just were removed. Offices and two labs, manifest area and storage area manufacturing area has a concrete floor which no significant cracks. Wash solvent stored in underground storage tank. Filter machine was used to rid of impurities (lint, paper) became part of the wash solvent.

50 gal - 500 gal portable tanks Stationary 1500 gal tanks opened in tanks

3-13-92 John V. Kunkler

OFFICE UPDATE

5/8/92

Friday

M. Casserly ⑤

0925

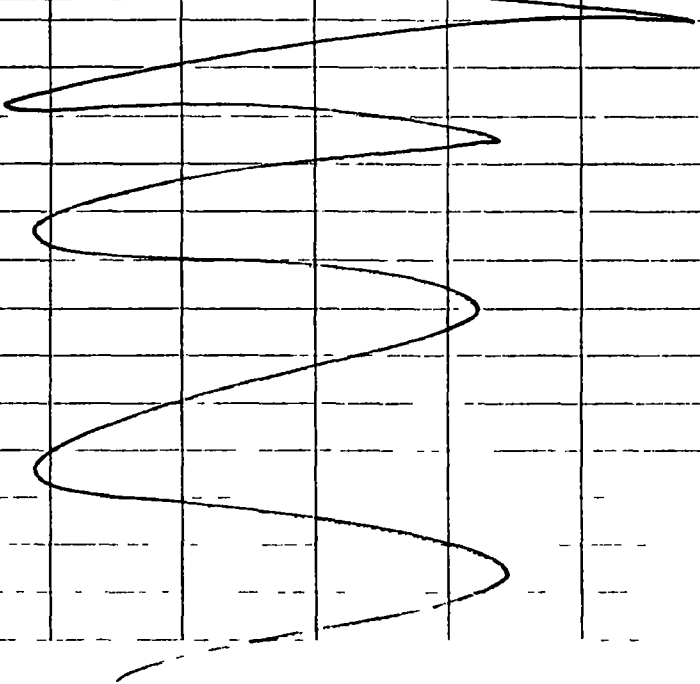
The purpose of the visit to the John L. Armitage facility was a visual site inspection for information collection and photography. The BVWST inspection team consisted of Joanie Kwilosz, civil engineer, and Margie Casserly, environmental engineer. The Armitage representative was Mr. Sal DeLuca. Mr. DeLuca's phone # is (708) 894-0148. The phone # of the Armitage headquarters in Tenn. is (615) 452-6556. The log book was maintained by JK. Photos were taken by MC. Locations of photos are recorded on a map taped to the next page of this book.

M. Casserly

④ 3-13-92 JMWV. Kinsley  
Back area along train  
tracks was not fenced off  
access into the site and  
to drums was possible  
10:35 After removal of USTs  
soil removed was backfilled  
leaving small mounds of  
soil. (sand and gravel)

10:45 Left site

MKC





**ATTACHMENT D**  
**SOIL CONCENTRATIONS OF ETHYL BENZENE**

### **Soil Concentrations of Ethyl Benzene**

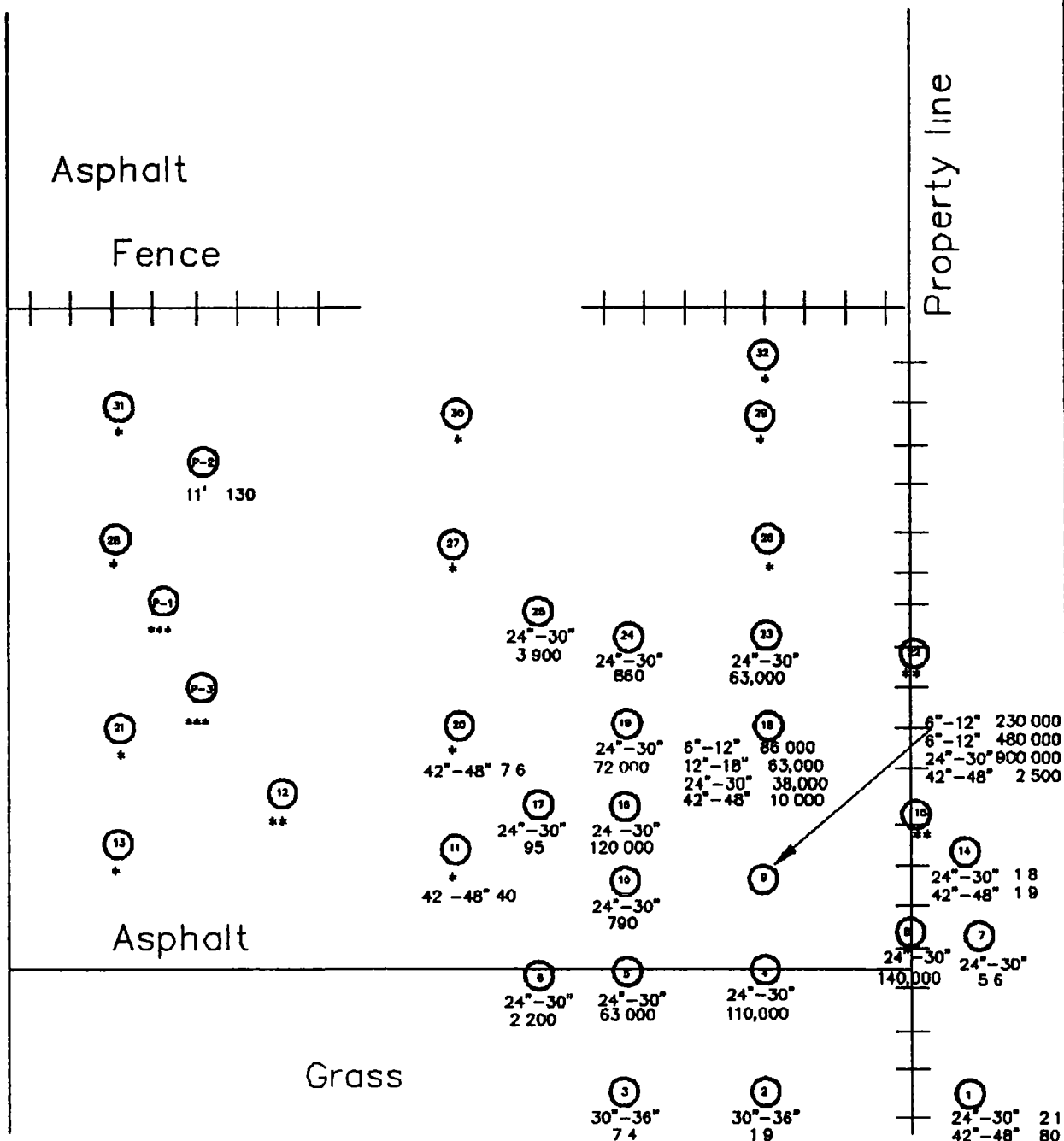
**Analysis of subsurface soil samples revealed the concentrations of ethyl benzene identified on the following figure. These concentrations are typical of the concentrations of other compounds identified in soil under the Armitage drum storage pad**

**Samples from locations 9, 11, 12, 13, 15, 18, 20, 21, 22, 26, 27, 28, 29, 30, 31, and 32 were collected April 19, 1990 at a depth of 6 to 12 inches. At the sample time locations 12, 18 and 22 were sampled at a depth of 24 to 30 inches**

**Samples for locations 4, 5, 8, 9, 10, 16, 17, 18, and 19 were collected May 18, 1990 from a depth of 24 to 30 inches**

**Samples from locations 1, 2, 3, 6, 7, 9, 11, 14, 17, 18, 20 and 25 were collected June 8, 1990. These samples were collected at deeper intervals, ranging from 24 inches to 42 inches deep**

Armitage Building



# LEGEND

All concentrations in micrograms per kilogram (ppb)

- \* Sampled at a depth of 6"-12", no detection
- \*\* Sampled at 6"-12" and 12"-18", no detection
- \*\*\* Sampled at depth 11 feet, date not given no detection

SOURCE ADAPTED FROM CLOSURE DOCUMENTATION REPORT FOR A CONTAINER STORAGE FACILITY, JULY 1990

JL ARMITAGE & CO  
ELK GROVE VILLAGE, ILLINOIS  
PA/VSI

ATTACHMENT D  
ETHYL BENZENE  
CONCENTRATIONS, 1990



**ATTACHMENT E**  
**SOIL SAMPLING DATA**

TABLE 3  
SUMMARY OF LABORATORY ANALYSES

	1A 95.0	1B 88.0	1C 95.4
% Solids			
Volatile Compounds (Method 8240) (ug/kg)			
Chloromethane	< 10000	< 11	< 10
Bromomethane	< 10000	< 11	< 10
Vinyl Chloride	< 10000	< 11	< 10
Chloroethane	< 10000	< 11	< 10
Methylene Chloride	< 5200	9	7
Acetone	< 10000 B	17 B	10
Carbon Disulfide	< 5200	< 6	< 5
1,1-Dichloroethene	< 5200	< 6	< 5
1,1-Dichloroethane	< 5200	< 6	< 5
1,2-Dichloroethene (total)	< 5200	< 6	< 5
Chloroform	< 5200	< 6	< 5
1,2-Dichloroethane	< 5200	< 6	< 5
2-Butanone	< 10000	< 11	< 10
1,1,1-Trichloroethane	< 5200	< 6	< 5
Carbon Tetrachloride	< 5200	< 6	< 5
Vinyl Acetate	< 10000	< 11	< 10
Bromodichloromethane	< 5200	< 6	< 5
1,2-Dichloropropane	< 5200	< 6	< 5
cis-1,3-Dichloropropene	< 5200	< 6	< 5
Trichloroethene	< 5200	< 6	< 5
Dibromochloromethane	< 5200	< 6	< 5
1,1,2-Trichloroethane	< 5200	< 6	< 5
Benzene	< 5200	< 6	< 5
Trans-1,3-Dichloropropene	< 5200	< 6	< 5
Bromoform	< 5200	< 6	< 5
4-Methyl-2-pentanone	< 10000	< 11	< 10
2-Hexanone	< 10000	< 11	< 10
Tetrachloroethene	< 5200	< 6	< 5
1,1,2,2-Tetrachloroethane	< 5200	< 6	< 5
→ Toluene	44000	< 6	< 5
→ Chlorobenzene	< 5200	< 6	< 5
→ Ethylbenzene	230000	< 6	< 5
→ Styrene	< 5200	< 6	< 5
→ Xylene (total)	1100000	< 6	< 5

B Indicates the compound was found  
in the blank and the sample

Metals (EP Toxic, mg/l)			
Silver, EP Leachate	0.028	< 0.020	< 0.020
Arsenic, EP Leachate	< 0.016	< 0.016	< 0.016
Barium, EP Leachate	< 1.0	< 1.0	< 1.0
Cadmium, EP Leachate	0.018	0.020	0.022
Chromium, EP Leachate	0.098	0.058	0.074
Mercury, EP Leachate	< 0.0010	< 0.0010	< 0.0010
Lead, EP Leachate	0.0079	0.031	0.0060
Selenium, EP Leachate	< 0.0080	< 0.0080	< 0.0080

\* 6 Volatile Compounds found > 10% of the nearest  
internal standard identified by mass spectral library  
search SUBT BENZENE C9H12 32000, 60000, 10,000 ug/kg

TABLE 3 (cont'd)  
SUMMARY OF LABORATORY ANALYSES

	2A <sup>1</sup>	2B <sup>20</sup>	2C <sup>21</sup>
% Solids	85 0	88 7	94 3
Volatile Compounds (Method 8240) (ug/kg)			
Chloromethane	< 5900 <	11 <	11
Bromomethane	< 5900 <	11 <	11
Vinyl Chloride	< 5900 <	11 <	11
Chloroethane	< 5900 <	11 <	11
Methylene Chloride	< 3000 <	6 <	5
Acetone	< 5900 B	15 <	11
Carbon Disulfide	< 3000 <	6 <	5
1,1-Dichloroethene	< 3000 <	6 <	5
1,1-Dichloroethane	< 3000 <	6 <	5
1,2-Dichloroethene (total)	< 3000 <	6 <	5
Chloroform	< 3000 <	6 <	5
1,2-Dichloroethane	< 3000 <	6 <	5
2-Butanone	< 5900 <	11 <	11
1,1,1-Trichloroethane	< 3000 <	6 <	5
Carbon Tetrachloride	< 3000 <	6 <	5
Vinyl Acetate	< 5900 <	11 <	11
Bromodichloromethane	< 3000 <	6 <	5
1,2-Dichloropropane	< 3000 <	6 <	5
cis-1,3-Dichloropropene	< 3000 <	6 <	5
Trichloroethene	< 3000 <	6 <	5
Dibromochloromethane	< 3000 <	6 <	5
1,1,2-Trichloroethane	< 3000 <	6 <	5
Benzene	< 3000 <	6 <	5
Trans-1,3-Dichloropropene	< 3000 <	6 <	5
Bromoform	< 3000 <	6 <	5
4-Methyl-2-pentanone	< 5900 <	11 <	11
2-Hexanone	< 5900 <	11 <	11
Tetrachloroethene	< 3000 <	6 <	5
1,1,2,2-Tetrachloroethane	< 3000 <	6 <	5
Toluene	150000 <	6 <	5
Chlorobenzene	< 3000 <	6 <	5
Ethylbenzene	86000 <	6 <	5
Styrene	< 3000 <	6 <	5
Xylene (total)	420000 <	6 <	5

B Indicates the compound was found  
in the blank and the sample

Metals (EP Toxic, mg/l)			
Silver, EP Leachate	0 020 <	0 020 <	0 020
Arsenic, EP Leachate	< 0 016 <	0 016 <	0 016
Barium, EP Leachate	17 <	1 0	1 0
Cadmium, EP Leachate	0 023 <	0 025	0 028
Chromium, EP Leachate	0 065 <	0 080	0 075
Mercury EP Leachate	< 0 0010 <	0 0010 <	0 0010
Lead, EP Leachate	0 021 <	0 0075	0 0049
Selenium, EP Leachate	< 0 0080 <	0 0080 <	0 0080

**TABLE 3 (cont'd)**  
**SUMMARY OF LABORATORY ANALYSES**

	3A 2 <sup>0</sup> 94.8	3B 5 <sup>1</sup> 82.1	3C 7 <sup>1</sup> 94.5
<b>% Solids</b>			
<b>Volatile Compounds (Method 8240) (ug/kg)</b>			
Chloromethane	< 10	< 12	11
Bromomethane	< 10	< 12	11
Vinyl Chloride	< 10	< 12	11
Chloroethane	< 10	< 12	11
Methylene Chloride	< 5	8	5
Acetone	< 10 B	20	11
Carbon Disulfide	< 5	< 6	5
1,1-Dichloroethene	< 5	< 6	5
1,1-Dichloroethane	< 5	< 6	5
1,2-Dichloroethene (total)	< 5	< 6	5
Chloroform	< 5	< 6	5
1,2-Dichloroethane	< 5	< 6	5
2-Butanone	< 10	< 12	11
1,1,1-Trichloroethane	< 5	< 6	5
Carbon Tetrachloride	< 5	< 6	5
Vinyl Acetate	< 10	< 12	11
Bromodichloromethane	< 5	< 6	5
1,2-Dichloropropane	< 5	< 6	5
cis-1,3-Dichloropropene	< 5	< 6	5
Trichloroethene	< 5	< 6	5
Dibromochloromethane	< 5	< 6	5
1,1,2-Trichloroethane	< 5	< 6	5
Benzene	< 5	< 6	5
Trans-1,3-Dichloropropene	< 5	< 6	5
Bromoforn	< 5	< 6	5
4-Methyl-2-pentanone	< 10	< 12	11
2-Hexanone	< 10	< 12	11
Tetrachloroethene	< 5	< 6	5
1,1,2,2-Tetrachloroethane	< 5	< 6	5
Toluene	< 5	< 6	5
Chlorobenzene	< 5	< 6	5
Ethylbenzene	< 5	< 6	5
Styrene	< 5	< 6	5
Xylene (total)	< 5	< 6	5

B Indicates the compound was found  
in the blank and the sample

<b>Metals (EP Toxic, mg/l)</b>			
Silver, EP Leachate	< 0.020	< 0.020	0.025
Arsenic, EP Leachate	< 0.016	< 0.016	0.016
Barium, EP Leachate	< 1.0	1.3	1.0
Cadmium, EP Leachate	< 0.010	0.011	0.017
Chromium, EP Leachate	0.066	< 0.020	0.071
Mercury, EP Leachate	< 0.0010	< 0.0010	0.0010
Lead, EP Leachate	0.0047	0.0078	0.0029
Selenium, EP Leachate	< 0.0080	< 0.0080	0.0080

TABLE 3 (cont d)  
SUMMARY OF LABORATORY ANALYSES

	4A 85 9	4B 95 0	4C 86 2
% Solids			
Volatile Compounds (Method 8240) (ug/kg)			
Chloromethane	< 12	< 10	12
Bromomethane	< 12	< 10	12
Vinyl Chloride	< 12	< 10	12
Chloroethane	< 12	< 10	12
Methylene Chloride	< 6	< 5	6
Acetone	< 12	< 10	12
Carbon Disulfide	< 6	< 5	6
1,1-Dichloroethene	< 6	< 5	6
1,1-Dichloroethane	< 6	< 5	6
1,2-Dichloroethene (total)	< 6	< 5	6
Chloroform	< 6	< 5	6
1,2-Dichloroethane	< 6	< 5	6
2-Butanone	< 12	< 10	12
1,1,1-Trichloroethane	< 6	< 5	6
Carbon Tetrachloride	< 6	< 5	6
Vinyl Acetate	< 12	< 10	12
Bromodichloromethane	< 6	< 5	6
1,2-Dichloropropane	< 6	< 5	6
cis-1,3-Dichloropropene	< 6	< 5	6
Trichloroethene	< 6	< 5	6
Dibromochloromethane	< 6	< 5	6
1,1,2-Trichloroethane	< 6	< 5	6
Benzene	< 6	< 5	6
Trans-1,3-Dichloropropene	< 6	< 5	6
Bromoform	< 6	< 5	6
4-Methyl-2-pentanone	< 12	< 10	12
2-Hexanone	< 12	< 10	12
Tetrachloroethene	< 6	< 5	6
1,1,2,2-Tetrachloroethane	< 6	< 5	6
Toluene	< 6	< 5	6
Chlorobenzene	< 6	< 5	6
Ethylbenzene	< 6	< 5	6
Styrene	< 6	< 5	6
Xylene (total)	< 6	5	18

B indicates the compound was found  
in the blank and the sample

Metals (EP Toxic, mg/l)			
Silver, EP Leachate	0 045	< 0 020	0 025
Arsenic, EP Leachate	< 0 016	< 0 016	0 016
Barium, EP Leachate	2.4	< 1 0	1 8
Cadmium, EP Leachate	0 038	0 021	0 025
Chromium EP Leachate	0 10	0 066	0 10
Mercury, EP Leachate	< 0 0010	< 0 0010	0 0010
Lead, EP Leachate	0 0099	0 0076	0 022
Selenium, EP Leachate	0 012	0 0080	0 0092

TABLE 3 (cont'd)  
SUMMARY OF LABORATORY ANALYSES

% Solids	5A	18C	18C
	32 95.3	Shallow 12 92.7	Deep 12 94.9
Volatile Compounds (Method 8240) (ug/kg)			
Chloromethane	< 10	< 11	10
Bromomethane	< 10	< 11	10
Vinyl Chloride	< 10	< 11	10
Chloroethane	< 10	< 11	10
Methylene Chloride	< 5	< 5	5
Acetone	< 10	< 11	10
Carbon Disulfide	< 5	< 5	5
1,1-Dichloroethene	< 5	< 5	5
1,1-Dichloroethane	< 5	< 5	5
1,2-Dichloroethene (total)	< 5	< 5	5
Chloroform	< 5	< 5	5
1,2-Dichloroethane	< 5	< 5	5
2-Butanone	< 10	< 11	10
1,1,1-Trichloroethane	< 5	< 5	5
Carbon Tetrachloride	< 5	< 5	5
Vinyl Acetate	< 10	< 11	10
Bromodichloromethane	< 5	< 5	5
1,2-Dichloropropane	< 5	< 5	5
cis-1,3-Dichloropropene	< 5	< 5	5
Trichloroethene	< 5	< 5	5
Dibromochloromethane	< 5	< 5	5
1,1 2-Trichloroethane	< 5	< 5	5
Benzene	< 5	< 5	5
Trans-1,3-Dichloropropene	< 5	< 5	5
Bromoform	< 5	< 5	5
4-Methyl-2-pentanone	< 10	< 11	10
2-Hexanone	< 10	< 11	10
Tetrachloroethene	< 5	< 5	5
1,1,2,2-Tetrachloroethane	< 5	< 5	5
Toluene	< 5	< 5	5
Chlorobenzene	< 5	< 5	5
Ethylbenzene	< 5	< 5	5
Styrene	< 5	< 5	5
Xylene (total)	12 <	5 <	5

B Indicates the compound was found  
in the blank and the sample

Metals (EP Toxic, mg/l)			
Silver, EP Leachate	0.036 <	0.020 <	0.020
Arsenic, EP Leachate	< 0.016 <	0.016 <	0.016
Barium, EP Leachate	< 1.0 <	1.0 <	1.0
Cadmium, EP Leachate	0.020	0.019	0.021
Chromium, EP Leachate	0.073	0.059	0.069
Mercury, EP Leachate	< 0.0010 <	0.0010 <	0.0010
Lead, EP Leachate	0.0097 ,	0.014 ,	0.011 ,
Selenium, EP Leachate	< 0.0080 <	0.0080	0.0084 ,

**TABLE 3 (cont'd)**  
**SUMMARY OF LABORATORY ANALYSES**

% Solids	1 5Base		2 5Base	
	Shallow	Deep	Shallow	Deep
	15 95 5	15 82 6	22 93 6	1 2 82 2
<b>Volatile Compounds (Method 8240) (ug/kg)</b>				
Chloromethane	< 10	< 12	< 11	< 12
Bromomethane	< 10	< 12	< 11	< 12
Vinyl Chloride	< 10	< 12	< 11	< 12
Chloroethane	< 10	< 12	< 11	< 12
Methylene Chloride	< 5	< 6	< 5	< 6
Acetone	13	18	13	16
Carbon Disulfide	< 5	< 6	< 5	< 6
1,1-Dichloroethene	< 5	< 6	< 5	< 6
1,1-Dichloroethane	< 5	< 6	< 5	< 6
1,2-Dichloroethene (total)	< 5	< 6	< 5	< 6
Chloroform	< 5	< 6	< 5	< 6
1,2-Dichloroethane	< 5	< 6	< 5	< 6
2-Butanone	< 10	< 12	< 11	< 12
1,1,1-Trichloroethane	< 5	< 6	< 5	< 6
Carbon Tetrachloride	< 5	< 6	< 5	< 6
Vinyl Acetate	< 10	< 12	< 11	< 12
Bromodichloromethane	< 5	< 6	< 5	< 6
1,2-Dichloropropane	< 5	< 6	< 5	< 6
cis-1,3-Dichloropropene	< 5	< 6	< 5	< 6
Trichloroethene	< 5	< 6	< 5	< 6
Dibromochloromethane	< 5	< 6	< 5	< 6
1,1,2-Trichloroethane	< 5	< 6	< 5	< 6
Benzene	< 5	< 6	< 5	< 6
Trans-1,3-Dichloropropene	< 5	< 6	< 5	< 6
Bromoform	< 5	< 6	< 5	< 6
4-Methyl-2-pentanone	< 10	< 12	< 11	< 12
2-Hexanone	< 10	< 12	< 11	< 12
Tetrachloroethene	< 5	< 12	< 5	< 6
1,1,2,2-Tetrachloroethane	< 5	< 8	< 5	< 6
Toluene	< 5	< 6	< 5	< 6
Chlorobenzene	< 5	< 6	< 5	< 6
Ethylbenzene	< 5	< 6	< 5	< 6
Styrene	< 5	< 6	< 5	< 6
Xylene (total)	< 5	< 6	< 5	< 6

**B** Indicates the compound was found  
in the blank and the sample

<b>Metals (EP Toxic, mg/l)</b>				
Silver, EP Leachate	0 025	< 0 020	0 033	< 0 020
Arsenic, EP Leachate	< 0 016	< 0 016	< 0 016	< 0 016
Barium, EP Leachate	< 1 0	< 1 0	< 1 0	< 1 0
Cadmium, EP Leachate	0 019	< 0 010	0 024	< 0 010
Chromium, EP Leachate	0 076	< 0 020	0 071	< 0 024
Mercury EP Leachate	< 0 0010	< 0 0010	< 0 0010	< 0 0010
Lead EP Leachate	0 0051	0 0068	0 0035	0 0059
Selenium, EP Leachate	0 0096	0 0092	< 0 0080	< 0 0080

TABLE 4

ANALYTICAL DATA  
RCRA STORAGE UNIT

Sample Date	Sample	Sample Depth (inches)	Ethylbenzene (ug/kg)	Toluene (ug/kg)	Xylene (ug/kg)	Laboratory Cross- Reference	Location Map
							Reference (Figure 2)
5/18/90	1AA	6-12	480000	1100000	180000	N/A	9
	1A	24-30	<u>900000</u>	<u>1200000</u>	<u>3800000</u>	N/A	9
	Base A	24-30	110000	290000	1900000	N/A	4
	Base 0 5	24-30	140000	1000000	1500000	N/A	8
	2A	24-30	38000	110000	260000	N/A	18
	2AA	12-18	63000	290000	460000	N/A	18
	Base AB	24-30	63000	91000	810000	N/A	5
	1AB	24-30	790	890	15000	N/A	10
	1 5 AB	24-30	120000	340000	730000	N/A	16
	2AB	24-30	72000	200000	500000	N/A	19
	2 5AB	24-30	860	2000	5500	N/A	24
	2 5A	24-30	63000	330000	440000	N/A	23
6/8/90	1 25-A	24-30 <	1 8	2 5 <	1 8	S-1	14
	1 25 A	42-48 <	1 9	5 3 <	1 9	S 2	14
	-1 A	24-30 <	2 1	7 2 <	2 1	S 3	1
	-1-A	42-48	80	96	200	S-4	1
	-1AB	30-36	7 4	3 3	8 4	S 5	3
	-1A	30-36 <	1 9 <	1 9 <	1 9	S 6	2
	BASE ABB	24-30	2200	1100	16000	S 7	6
	0 5-A	24-30	5 6	70	34	S 8	7
	1.5ABB	24-30	95	2800	12000	S 9	17

TABLE 4  
(cont'd)  
ANALYTICAL DATA  
RCRA STORAGE UNIT

Sample Date	Sample	Sample Depth (inches)	Ethylbenzene (ug/kg)	Toluene (ug/kg)	Xylene (ug/kg)	Laboratory Cross Reference	Location Map Reference (Figure 2)
6/8/90	2 SABB	24-30	3900	18000	26000	S 10	25
	2A	42-48	10000	41000	88000	S 11	18
	1A	42-48	2500	110000	340000	S 12	9
	1B	42-48	40	1300	12000	S-13	11
	2B	42-48	76	28	140	S-14	20